U.S. DEPARTMENT OF COMMERCE
National Technical Information Service
PB-289 379

Pilot Study on Nutrition and Health

NATO Committee on the Challenges of Modern Society, Brussels (Belgium)

Oct 78

PB 289379

COMMITTEE ON
THE CHALLENGES OF
MODERN SOCIETY

PILOT STUDY ON NUTRITION AND HEALTH

+

FINAL REPORT
Number 92

OCTOBER 1978

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U. S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

NORTH ATLANTIC TREATY ORGANIZATION

89

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO. NATO/CCMS 92	2.
3. RECIPIENT'S ACCESSION NO. PB289379	
4. TITLE AND SUBTITLE Pilot Study on Nutrition and Health - Final Report	5. REPORT DATE October 1978
	6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS North Atlantic Treaty Organization Committee on the Challenges of Modern Society Brussels, Belgium	10. PROGRAM ELEMENT NO.
	11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS North Atlantic Treaty Organization Committee on the Challenges of Modern Society Brussels, Belgium	13. TYPE OF REPORT AND PERIOD COVERED
	14. SPONSORING AGENCY CODE
15. SUPPLEMENTARY NOTES	

16. ABSTRACT

This report investigates certain limited fields of endeavor in the area of nutrition and health. It examines the means by which government agencies attempt to change dietary habits or nutrient intakes, and the purpose and effectiveness of such attempts.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS *(This Report)*	21. NO. OF PAGES 89
	20. SECURITY CLASS *(This page)*	22. PRICE MF $1.00 PC $4.00

EPA Form 2220-1 (9-73)

PILOT STUDY ON NUTRITION AND HEALTH

÷

FINAL REPORT
Number 92

OCTOBER 1978

NORTH ATLANTIC TREATY ORGANIZATION

North Atlantic Treaty Organization
Nutrition and Health Survey

Table of Contents

		Page
Introduction		2
1.	What methods are used in your country to change dietary habits?	3
2.	What are the aims of such programs?	13
3.	Which levels and departments of government are responsible for such programs?	15
4.	How are the programs monitored?	16
5.	Is effectiveness evaluated? How?	19
6.	Have unintended effects been observed?	19
7.	What methods are used to assemble data on (a) dietary intake? (b) nutritional status?	20
Conclusions and Recommendations		20

ANNEXES

I.	Canada
II.	United States of America
III.	United Kingdom
IV.	Norway
V.	Belgique
VI.	Medical Evaluation of the WIC Program (U.S.A.)
VII.	Italy
VIII.	Netherlands

NORTH ATLANTIC TREATY ORGANIZATION
COMMITTEE ON THE CHALLENGES OF MODERN SOCIETY

Nutrition and Health Pilot Study

Introduction

In 1976 the North Atlantic Council approved a Pilot Study proposed by the Committee on the Challenges of Modern Society to investigate certain limited fields of endeavour in the area of Nutrition and Health. It was agreed at the initial meeting between representatives of participating countries that the study would examine the means by which government agencies attempt to change dietary habits or nutrient intakes, and the purpose and effectiveness of such attempts. The intent of a questionnaire, sent out in the summer of 1976, was to establish the present situation in NATO Countries. By the beginning of October, 1976, replies had been received from Belgium, Canada, Norway, United Kingdom and the United States of America and are summarized in the following text, under a heading corresponding to each question and sub-question. Copies of the original replies, including those from Italy and the Netherlands which arrived too late to be included in the summary, are given in Annexes I through VIII. This summary has been prepared by the Canadian Secretariat which takes responsibility for any errors in interpretation of the answers to the questions.

This documentation was examined at a one-day meeting of the Pilot Study Group held in Brussels at NATO Headquarters, Monday, March 7, 1977. Recommendations were made on strategies to deal with the nutritional problems of modern society.

1. WHAT METHODS ARE USED IN YOUR COUNTRY TO CHANGE DIETARY HABITS?

UNITED STATES OF AMERICA

A. Education

Nutrition education has become an area of great importance particularly in view of the findings of the Ten State Nutrition Survey (TSNS), 1968-1970, which showed that a significant proportion of the population was malnourished or at a high risk of developing nutritional problems.

Since food habits are formed early in life, particular emphasis has been placed on promoting sound nutritional habits in the young through school health education programs.

There are also under consideration, proposals to develop nutrition education programs for the public to alert people to current information on the links between nutrition and health. In recent years there has been an increasing demand by consumers for more informative nutrition labelling and the Food and Drug Administration (FDA) has undertaken a comprehensive review of food labelling and regulations that control it. As a result a new series of regulations on nutrition labelling has been promulgated which provides consumers with information concerning the nutrient content of foods. This is an important educational tool which assists the consumer in making choices with regard to the most nutritious product among those that are available. The FDA also has underway, a media-based program to educate the public on nutrition labelling.

Many of the government agencies are involved in producing nutrition education booklets. These may be general in scope, e.g. FACTS ABOUT NUTRITION or relate to specific dietary needs, e.g. DIET GUIDE FOR PATIENTS ON RENAL DIALYSIS. Other examples are HOW A MOTHER AFFECTS HER UNBORN BABY and FOOD FOR THE TEENAGER DURING PREGNANCY. Some publications are aimed at professionals as, for example, a handbook published by the National Heart, Lung and Blood Institute on the dietary management of hyperlipidemia.

Other agencies whose task is not primarily related to nutrition are increasingly being involved in the nutrition field. For example, the National Institute of Drug Abuse (NIDA) is funding a number of projects designed to meet the special treatment needs of female addicts.

The Health Services Administration (HSA) of the Department of Health, Education and Welfare (DHEW) provides the national focus for programs and services concerned with the availability, efficiency and quality of health care. Nutrition is regarded as an integral part of the three phases of health care delivery (i.e. prevention, treatment and rehabilitation) and is therefore

included among the responsibilities of its four major program areas (Bureau of Health Services, Indian Health Service, Bureau of Medical Services and the Bureau of Quality Assurance).

The Bureau of Health Services is responsible for nutrition services as an integral part of community health programs, such as family planning, maternal and child health and community health centres. These programs provide 1) assessment of nutritional status and diagnostic evaluations of nutrition problems, 2) dietary counselling as part of prevention and treatment and 3) nutrition education for physicians, nurses and other health workers. The responsibilities also include 1) the provision of leadership and technical assistance in developing nutrition services to be an integral part of health care services, 2) developing appropriate standards and guidelines related to nutrition and 3) administering and monitoring grants which provide for nutrition services.

The nutrition and dietetics branch of the Indian Health Service is responsible for a program of total nutritional care for American Indians and Alaska natives.

The Bureau of Medical Services provides a complete food service to hospital patients and also educates and counsels both in- and out-patients in the implementation and use of good nutritional practices which can help treat, alleviate, prevent or control disease.

The Bureau of Quality Assurance is involved with the continuing development and appraisal of medical conditions of participation (for example, health and safety standards for hospitals). Standards for high quality nutrition services are essential elements of Medicare requirements and nutritionists from the Bureau provide consultation and technical assistance with respect to interpretation and application of standards for quality nutrition services.

The nutritional staff in the Central office of HSA have counterparts in the Regional offices of DHEW and the area offices of IHS. In addition they also have state and local counterparts in state health agencies and local health departments.

UNITED KINGDOM

In the UK basic teaching about nutrition is carried out within the Health Services by the primary health care team, i.e. family doctors, health education officers, home nurses, community dietitians, midwives and health visitors in their regular contact with the public especially with expectant and nursing mothers and young children.

The country is divided into Area Health Authorities and provision is made for the appointment of health education

officers and community dietitians although not all authorities have them as yet. Both health and education services would look to the Area Health Authorities for support in curriculum preparation and provision of educational materials. At the national level the government has delegated its functions in health education areas to the Health Education Council which is responsible for health education mass media campaigns, for research including school health educational research and curriculum content and the preparation of educational materials. The Ministry of Agriculture, Fisheries and Food publish a Manual on Nutrition which is widely used by the lay public and in teaching students the elements of nutrition.

The Department of Health and Social Security also produces reports which are relevant to health education and include recommendations, for example, on diet and cardiovascular disease, infant feeding practice aimed at promoting breast feeding, and the prevention of vitamin D deficiency.

NORWAY

In guidelines for school teachers some emphasis is placed on teaching good dietary habits. Children are encouraged to each school lunches whose nutrient content must satisfy criteria established by the National Nutrition Council. Information for the general public on sound dietary habits is provided by the Consumer Council which has a nationwide home economics information service. There is also a similar service provided by the State Institute for Consumer Research.

BELGIUM

Much of the educational work is undertaken by the Institute Belge de l'alimentation et de la nutrition, an organization subsidized by the Ministère de la Santé Publique et de la famille. The institute recently published a pamphlet entitled "Attention au Sel" which draws attention to the hazards of excessive salt intake in relation to cardiovascular diseases. In addition the institute organizes study groups on problems of current concern in the nutrition field. There is a good deal of cooperation between university personnel and the Ministry of Health and they participate in information programs on radio and television.

CANADA

Although educational matters fall primarily under the jurisdiction of the provinces, the Federal Government has a responsibility as an information provider and also in the provision of guidelines in the field of nutrition in matters considered of national importance. For example the Department of National Health and Welfare produces Canada's Food Guide, a guide

to food selection which presents a nutritionally adequate meal pattern of food selections in which foods are grouped according to their nutrient content. It forms the basis of most of the nutrition education material produced by the government.

Another publication, Selected Nutrition Teaching Aids, is a selection of useful teaching aids designed as a nutrition education tool for professionals with an interest in nutrition. Other departmental publications include Healthful Eating (deals in a non-technical way with the particular nutrient needs of different age groups), Canadian Mother and Child (written for the lay person and designed to offer assistance in dealing with day-to-day health matters that arise pregnancy and the baby's first year of life). Health and Fitness is a Swedish publication reprinted by the Department of National Health and Welfare. This booklet aims to generate an awareness of the importance of physical fitness and includes a section emphasizing the importance of a proper diet in any physical activity program.

The Canadian Dietary Standard is an official statement of the daily amounts of energy and essential nutrients considered adequate to meet the needs of all healthy persons in the population. Guidelines for School Food Programs has been prepared by a committee of federal and provincial nutritionists to support efforts being made across Canada to improve school food services.

Each Provincial Government is responsible for its own health and welfare programs and therefore the priority given nutrition and the educational methods used to improve nutritional health vary.

The major targets for nutrition education have traditionally been the prenatal group, infants and the school-age child. However, changing lifestyles, new health problems generated by an affluent lifestyle and changing age patterns within the Canadian community have resulted in an increased appreciation of the pivotal role that nutrition plays in the total life cycle. Therefore efforts are made to integrate nutrition as a component of the total health education program. The extent to which this has developed varies from province to province.

For example, most provinces have fairly well established prenatal and school programs. Prenatal programs often take the form of classes taught by Public Health Nurses at clinics or in association with hospitals. Nutritionalists and dietitians also counsel individuals after referral from physicians in an attempt to improve the nutritional status of "high risk" pregnancies.

Nutrition education activities related to school children vary widely in scope and format. However, all provincial nutrition departments are involved in the production of education packages - publications, films and other audio-visual aids. Learning packages are used as a resource material for teachers and workshops are conducted for them to introduce their use in

schools. In some provinces workshops are also conducted for parents with a view to improving the dietary habits of the whole family. Teachers are often given in-service training to guide them in choosing effective methods and resources for teaching nutrition. Several provinces have a nutritious breakfast or snack or school milk program usually with a nutrition education component as an integral part of the program.

With the growing awareness of the health implications of obesity and overweight more attention is being given to weight control programs. Nutritionists from the departments of health are invited to speak to groups interested in weight reduction and weight control. They also develop publications and aids to support their teaching. Two provinces have programs in which a nutrition-plus-exercise concept is presented and in which counselling is based on individual assessment.

Although the elderly have not had much visibility in the past in health programs, in a number of provinces attention is being given to expanding and improving nutrition services to the elderly.

All provinces are involved in general education campaigns in which their aim is to create an awareness of the nutritional value of foods, to impart a basic knowledge of nutrition and to assist consumers in selecting foods which can be used to form nutritionally adequate meals in a variety of eating patterns. These efforts can take a variety of forms. For example, developing pamphlets and brochures on specific topics, mass media releases, provision of resource personnel at workshops, food and nutrition displays and exhibits at shopping malls and fairs.

B. Fortification

UNITED STATES OF AMERICA

The FDA has taken action to allow for the optional addition and in some cases the mandatory addition of critical nutrients to certain foods. These are nutrients which might otherwise be limiting in the diets of large segments of the population. Examples are, the mandatory addition of vitamin A and the optional addition of vitamin D to margarine, addition of iodine to salt, certain B vitamins and iron to flour and cereals.

The FDA has also established nutrition labelling regulations which are designed to assist the consumer in

1) differentiating between foods, dietary supplements and drugs and

2) in identifying the nutrient value of foods.

The regulations under (1) above state essentially the following:

(a) no claim may be made that a food is a significant source of a nutrient unless that nutrient is present in the food at a level equal to or in excess of 10 per cent of the U.S. Recommended Dialy Allowance (RDA) of the claimed nutrient per serving of the food.

(b) If vitamins and/or minerals are added to a food to the extent that a single serving provides 50 per cent or more of the RDA of any one of the added vitamins and/or minerals, such food is classed as a dietary supplement.

(c) If vitamins and/or minerals are added to a food to the extent that a single serving contains 150 per cent of more of the RDA for any one of the added vitamins or minerals, the food is classified as a drug and subject to drug, rather than food regulations.

The regulations under (2) above permit the presentation on the label of the percentage of the RDA of seven vitamins and minerals supplied by a serving of food. In addition the total amounts of calories, fat, protein and carbohydrate would be listed. The seven vitamins and minerals are key nutrients likely to be inadequate in the diets of those who do not eat a well balanced diet. Food labels may also carry another column showing the total nutrient intake from a particular food on a daily basis, provided there is reliable data to support the postulated daily intake.

UNITED KINGDOM

In the United Kingdom the fortification of two foods is mandatory: a) Since 1920, margarine must be fortified with vitamins A and D.

b) Since the 1940s certain nutrients must be added to white flour.

In the early 1940s, because of a possible shortage of dairy products and a need to restrict imports of wheat, legislation enforced the addition of calcium carbonate to all flour except that from 100% extraction, and also raised the extraction rate of flour for the "national loaf". After the war there was concern that a return to white bread might lead to deficiencies of some vitamins and minerals. Fortification of white flour with calcium carbonate was continued, and thiamin, niacin and iron were compulsorily added to amounts which restored the vitamin and mineral content to that of 80% extraction flour. Riboflavin was not added because milk is the chief source of this nutrient in the United Kingdom diet. The addition of these nutrients to white flour still remains mandatory.

Many other foods are fortified with certain nutrients on a voluntary basis. For example, all infant milk foods are fortified with vitamins A, C and D and with iron. Some control is exercised in that labelling and claims made by manufacturers must comply with legislation.

'Novel' foods are under consideration. Recommendations have been made for fortification of vegetable protein foods which are manufactured to simulate meat, but the recommendations are not yet mandatory.

NORWAY

The Norway nutrient fortification of food has followed a fairly restrictive policy. In common with many other nations iodine is a permitted addition to table salt, iron to flour and vitamins A and D to margarine. Only the latter is required by law.

BELGIUM

In Belgium too, fortification of food with vitamins and minerals is very restricted. There has been a good deal of concern about excess salt intake and the role this may play in the etiology of hypertensive heart disease. A number of regulations have been enacted recently in an attempt to alleviate this problem. For example, regulations limiting the salt content of bread and regulations for salt-free foods. Other regulations have specified minimum and maximum compositional values for bread and meat. Limitations have also been placed on the maximum allowable levels of erucic acid in fats and oils.

CANADA

In Canada the control of fortification is a federal responsibility. The Food and Drugs Act and Regulations is administered by the Department of National Health and Welfare. The Regulations under this Act permit the addition of specified vitamins and minerals to certain specified foods (See Table 1, Annex I).

Until 1975, with the exception of iodine to salt and the addition of vitamins and iron to instant and ready-to-eat breakfasts, the addition of vitamins and minerals to foods was optional and left to the discretion of individual manufacturers. In 1975 regulations governing the nutrient composition and quality of simulated meat and poultry products were promulgated. These regulations stipulate the minimum protein quality and quantity and the minimum levels of 12 nutrients that such products must contain. In a similar manner the nutrient quality of products simulating whole egg has been stipulated. In addition such a product must not contain more than 3 mg of cholesterol per 100 grams.

In March 1976 the range of products requiring mandatory addition of vitamins and minerals was increased.

All forms of milk must contain added vitamin D and skim and partially skim milk must also contain added vitamin A. All forms of evaporated milk must also contain added vitamin C. Flour must contain added thiamine, riboflavin, niacin and iron and may contain added magnesium, vitamin B_6, folic acid and pantothenic acid.

Regulations proposing the mandatory addition of vitamin C to fruit and vegetable drinks (i.e. juice substitutes) and the mandatory addition of vitamins A and D to margarine are being considered.

C. Subsidization

UNITED STATES OF AMERICA

A number of food assistance programs, subsidized by the Federal Government are in operation. Because the prenatal period, infancy and childhood are particularly vulnerable to nutritional insult, many of the current programs are directed to expectant mothers, infants and children.

1. Special Supplemental Food Programs for Women Infant and Children (WIC)

This is a program of nutrition supplements for low-income pregnant and nursing mothers and young children. Under its provisions persons judged to be at "nutritional risk" by health professionals due to low income or inadequate nutrition are eligible to receive free, each month, about $20.00 worth of nutritious foods.

One primary federal role in the program is to provide funding. The federal government reimburses all food costs and provides an additional 20 percent of food costs as an administrative fee. The USDA passes funds to state departments of health and these state agencies are responsible for operating the program. A second federal role is to provide general guidance for program operations. Three general types of delivery systems are used for WIC foods:

i) retail purchase in which the participant receives a voucher which is then redeemed for WIC foods at a retail food store.

ii) home delivery in which a commercial dairy delivers WIC foods to the recipients' homes at specified intervals.

iii) direct distribution whereby the participant comes to the clinic to pick up the foods.

2. School Lunches and Breakfasts and Related Programs

Expanded child feeding efforts under the Child Nutrition Act of 1966 have been made. Nutritious breakfasts are provided to children in selected schools that have many needy pupils or to which many of the children travel long distances. Each school in the program must offer breakfast and is required to provide breakfast free or at a reduced rate to pupils who are unable to pay the full price. A 1968 amendment to the National School Lunch Act extends feeding to groups outside the school, e.g. day care centres, settlement houses. In 1967, about 300,000 young children, mostly of preschool age, were reached with day care services which include the provision of nutritious meals and snacks. The Federal Inter-Agency Day Care Requirements state that the day care facility must provide adequate and nutritious meals.

3. The Food Stamp Program

The Food Stamp Act of 1964 authorized a food stamp program to increase the buying power of low income households, through Federal food stamps. The participant pays a sum of money, based on family size and net family income for the food stamps.

UNITED KINGDOM

The U.K. has a long history of subsidized food programs which recognize that expectant and nursing mothers, infants, preschool and school children are the most likely vulnerable groups at risk of malnutrition. Cheap milk and vitamin supplements are provided for expectant and nursing mothers and children up to the age of 5 years. At school, subsidized school meals are available to all, and some children get free school milk.

Expectant and nursing mothers

(a) Milk - from 1940 - 1971 all expectant and nursing mothers were entitled to one pint of whole milk per day at half-price throughout pregnancy and lactation. Bottle-fed infants were entitled to one packet of subsidized National Dried Milk (NDM) per week which was equivalent to the 7 pints of household milk provided for the lactating mother. These benefits were free to the poor. From 1971 onwards, the benefits were no longer available to all expectant and nursing mothers, but the number of large, poor families who qualified for free benefits was increased. From 1976 National Dried Milk (an unmodified dried cow's milk enriched by vitamins A, C and D and with iron) was discontinued. Mothers who qualify for free benefits and who do not breast feed can choose and obtain free of charge any of the modified infant milks recommended by their professional advisers.

(b) Vitamin supplements have been available since 1940 to expectant and nursing mothers. The supplements are cheap to all and free to mothers of large poor families who qualify for free milk. The supplements are now in the form of tablets containing vitamins A, C, D, calcium and potassium iodide. Iron tablets (cheap or free) are also available.

Preschool Children

Children aged 0 to 5 years can obtain cheap vitamin drops (vitamins A, C and D). These are free to poor, large families and replace the original cod liver oil and orange juice. In addition, these families obtain 1 pint of household milk per child free of charge.

School Children

(a) Milk - In 1934, a school milk scheme was started in which children could buy milk at school at a subsidized price and those from poor families received it free. In 1944, the

Education Act made it compulsory for local education authorities to provide 1/3 pint of milk at reduced price to all school children on every day of the school year. In 1946, the Act was amended so that the milk supplied in school was free of charge. This benefit was withdrawn from secondary schools (i.e. children over 12 years of age) in 1968, and in 1971 from the junior schools (i.e. children aged 7 to 12 years). At present, 1/3 pint free school milk is available daily during the school year to all children in nursery schools (aged 3-5 years), and in the infant schools for children from 5 years up to the end of the school year in which they reach their seventh birthday; to older children from whom it is authorized by the school doctor for reasons of health, and to children in the special schools for handicapped pupils.

(b) School Meals. Since 1906, Local Education Authorities have had powers to provide school meals but the Education Act of 1944 made it compulsory for a school dinner to be provided for all who wanted it. School meals are heavily subsidized (at present to about 60% of the overall cost) and the normal charge is remitted for parents in poor circumstances. Minimum dietary standards are set for the school meal. On average six million school meals are provided daily and about 10% of these are free.

Other foods.

Certain food staples are also subsidized e.g. milk and butter (since 1972) and bread, flour, cheese and tea (since 1974).

2. WHAT ARE THE AIMS OF SUCH PROGRAMS?

UNITED STATES OF AMERICA, UNITED KINGDOM, NORWAY, BELGIUM AND CANADA

A. Education

The basic aim of all nutrition education programs is to promote an awareness among the public of the fact that good nutrition is a key component of good health. Since food habits are acquired early in life, childhood is a particularly crucial period and to have lasting value, good eating habits must be initiated during this period. Pregnant women form another important target group, not only because nutritional status will have an influence on pregnancy outcome but also because eating habits will have repercussions on the child. If a sound knowledge of good nutrition is incorporated into the mother's lifestyle this will undoubtedly benefit the child.

In some countries, malnutrition due to inadequate nutrient intake, appears to have practically disappeared whereas, in others, especially in Canada and the U.S.A., pockets of malnutrition still exist. This is particularly true of Indians and Eskimos in Canada

who, during the transition from their traditional eating patterns to those of the white man, appear to be at high risk of developing certain nutrient deficiencies. Non-Caucasians in the U.S.A. also tend to be at greater nutritional risk than others.

While overt nutritional deficiency disorders are not a common problem in the NATO countries this does not mean that current dietary habits are not of concern. In fact, increasing attention is being paid in education programs to the so-called "diseases of civilization", namely cardiovascular diseases, obesity, hypertension and dental caries, all of which have diet and eating habits as important factors in their etiology. Beside choice of food as a risk factor in these disorders, other elements of a hazardous lifestyle such as drug and alcohol abuse can have important repercussions on nutritional health. In the U.S.A. attention has been focused on female drug abusers. Attempts are made to improve their parental ability and part of this involves nutrition education. It is thought that by focussing on a client's nutritional problems, a treatment program can help restore the client as well as her family to better nutritional health.

In recent years, particularly in the U.S.A., there has been an increasing consumer demand for more informative labelling about the nutrient content of foods. As a result the FDA has formulated a series of regulations which permit manufacturers to give nutrient content information on food labels providing a standard format. This is seen as an important education tool in assisting the consumer to make appropriate food selections.

B. Fortification

The major purpose of food fortification is to ensure that the food supply is nutritionally adequate. With technological progress in the food industry traditional foods are being replaced from the diet and increasing use is being made of highly refined products and this has created concern about the possible deterioration of the nutritional quality of the food supply. Remedial action has been taken by governments to permit and in some cases to require by law, the addition of certain vitamins and minerals to selected foods. Regulations vary widely from country to country and some programs are better established than others. For example, the addition of B vitamins and iron to white flour has been permitted in North America and the U.K. since the Second World War, whereas the specified nutrient content of substitute foods in Canada is of recent origin. Some fortification policies, such as the iodization of salt, have aimed to correct a demonstrated deficiency in a population. In the U.S.A and Canada the fortification of liquid milk with vitamin D is regarded as being important in the prevention of rickets.

C. Subsidization

Since the relationship between income level and health is well established, subsidy programmes, which are well established

in the U.K. and U.S.A., have been directed towards preventing inadequacies in nutrient intake among poor people. Nutritious foods are made available to vulnerable groups, especially children and pregnant women, who might not otherwise be able to obtain them. In school food programs in the U.S.A., minimum dietary standards are set with the aim of improving the nutrient intake of children who participate.

The provision of vitamin A, C and D supplements to children and to expectant and nursing mothers in the U.K. has been aimed at the prevention of nutritional deficiencies. The maintenance of a nutritious food supply and the prevention of disease also applies to the welfare milk, school milk and school meal schemes. These schemes in the U.K. were initially of widespread application but in 1971 were placed on a selective basis so that only those in situations of greatest need, for example the poor and large families, are eligible to participate in these programs.

Nutrition programs designed to dispose of surplus foodstuffs were not widely reported as such. Examples of this approach were a short-term token system for beef and butter for old age pensioners in the U.K. and a federal subsidy on skim milk powder in Canada.

Subsidies by central or federal governments on widely consumed basic foodstuffs such as those recently introduced in the U.K. for flour, butter, cheese and tea and in Canada for wheat flour have been made for purely economic reasons.

3. WHICH LEVELS AND DEPARTMENTS OF GOVERNMENT ARE RESPONSIBLE FOR SUCH PROGRAMS?

Depending on whether there is a central or a federal system of government there are differences in the distribution of responsibility between levels of government. An example of a central government is the United Kingdom where responsibility for various nutrition programs is broken down as follows:

(a) Department of Education and Science (school milk and meals)

(b) Department of Health and Social Security (welfare milk, supplements)

(c) Department of Prices and Consumer Protection (food subsidies - these are administered by the Ministry of Agriculture, Fisheries and Food)

(d) Ministry of Agriculture, Fisheries and Food (Food and Drugs Act, Labelling and Claims Regulations, Food Standards, Food Additives and Contaminants)

With the federal system of government as operating in Canada there is a division of powers under the Canadian Constitution whereby the provision of health care services has traditionally been acknowledged as being primarily a provincial responsibility. Nevertheless there is a considerable measure of federal responsibility

in health matters. For example, the Department of National Health and Welfare administers the Food and Drugs Act and Regulations which provide the Department with authority for the control of quality of the food supply. This includes control of fortification as well as protection of the consumer from hazards in the food supply. The school and education systems are also matters primarily of provincial concern. However, in matters of health (including health and nutrition education) the powers of the Minister extend to and include all matters relating to the promotion or preservation of health and welfare.

In the area of nutrition education this is viewed as a leadership role in furnishing information, guidelines and tools which can be used by the provincial governments. The Bureau of Nutritional Sciences of the Department of Health and Welfare also functions as a central coordinating agency for nutrition information and education programs in the provinces and cooperates with the provincial departments of health in the design, testing and operation of improved techniques in nutrition education.

4. HOW ARE THE PROGRAMS MONITORED?

(a) Surveillance of Nutritional Status

In the U.S.A. nutrition surveys are used periodically to assess the nutritional status of the U.S. population. Such surveys assess the nutrient intake and have also included biochemical, clinical and anthropometric assessment of nutritional status. For example, in 1965 as part of a nation-wide household food consumption survey made by the USDA, information was obtained on the intake for one day of the individual members of the households interviewed by use of the 24 hour recall technique.

In summary the survey showed that:

(i) the average diets for most physiological groups met the Recommended Dietary Allowances (RDA) except for calcium and iron

(ii) calcium and iron intakes were particularly poor for girls, women and children

(iii) intakes of calories and several nutrients were well above the RDA for infants yet iron and vitamin C intakes were poor

(iv) the proportion of calories derived from fat ranged from 39 - 45%

(v) for persons in the lowest income groups in addition to calcium and iron, vitamin A and vitamin C intakes were below the RDA.

In 1968-70 the Ten State Nutrition Survey was mounted which included not only dietary assessment but also biochemical, clinical, anthropometric evaluation and measures of dental health. As a result of this survey it was found that:

(i) Adolescents between the ages of 10 and 16 years had the highest prevalence of unsatisfactory nutritional status

(ii) Elderly people over the age of 60 showed evidence of general undernutrition

(iii) Obesity was most prevalent in women, particularly black women and in some groups the prevalence was over 50 per cent

(iv) The prevalence of goitre was not related to iodine status which appeared to be satisfactory

(v) Poor dental health was widespread

In 1970 it was decided to make the periodic assessment and monitoring of the nutritional status of the American people a responsibility of the Division of Health Examination Surveys (HANES). This system has as its purposes the measuring of nutritional status for the U.S. population and monitoring the changes in this status over time. The HANES is the first program to collect measures of nutritional status for a scientifically designed sample representative of the U.S. population in a broad range of ages, 1-74 years.

Major findings were:

(i) Iron intake was low in most physiological groups

(ii) Elderly negroes had the highest prevalence of low haemoglobin and haematocrit values

(iii) The highest prevalence of low transferrin saturation values occurred in young children and teenagers

(iv) Negro children aged 1-5 years showed the highest prevalence of low serum vitamin A values

During the next few years the HANES program will be expanded into a national nutrition surveillance program. This will maintain current information on the status of individuals and groups with nutrition problems in specific sections of the country and assist in designing intervention programs to reduce the disease consequences of poor nutrition.

In the United Kingdom full scale nutrition surveys which have included biochemical and clinical assessment have usually been confined to "at risk" groups such as the elderly, preschool children, school children and pregnant women. In 1971 when the

government changed the provision of welfare milk, school milk and school meals, special growth surveillance studies were set up directly to monitor the effects, if any, on the nutritional status of infants, preschool and school children and pregnant women.

In Canada a nationwide survey of nutritional status was carried out in 1970-2. This was the first national nutrition survey conducted in Canada. It is not feasible to conduct a survey of this scale on a regular basis but specific questions of concern in the area of nutrition can be included in an ongoing survey of health status to commence in 1978. Nutrition does not figure prominently in the proposed initial survey. Measures of nutritional status appear to be only rarely used in individual provincial programs.

(b) Food Disappearance Data

All countries use estimates of food availability at the national level to provide an indirect measure of "average consumption". The estimated supplies of different foods when translated into calories and nutrients give per capita amounts available for human consumption. This is the type of information used by the Food and Agriculture Organization (FAO) to produce the FAO Food Balance Sheets. The agencies involved in collecting this data vary from country to country. For example, U.K. (Ministry of Agriculture, Fisheries and Food), Canada (Statistics Canada), Norway (National Nutrition Council). These figures can only give a crude estimate of what is available on average for consumption and do not give any information about loss or wastage or distribution of intake within the population.

A further refinement, providing direct measures of food consumption, is the National Food Survey, used in the U.K. This is a continuous measure of the retail food which enters households in different regions of the country. The Survey began in 1940 with respect to poor urban households but, since 1950, a representative sample of all U.K. households has been selected.

(c) Morbidity and Mortality Studies

Most countries reported some form of compilation of mortality and morbidity statistics. In Canada this data is collected by Statistics Canada, in the U.S.A. by the National Centre for Health Statistics and in the U.K. by the Office of Population Censuses and Surveys. Such figures can only give a crude approximation of the prevalence of nutritional diseases. Compilation of causes of death can be used as an indicator for the direction programs of prevention should take. Morbidity statistics are related to hospital populations and cannot be extrapolated to the general population. It is to correct this deficiency that continuous health surveys have been initiated in the U.S.A. In the U.K. some indication of the prevalence of anemia in women of reproductive age is obtained from the number of women rejected as blood donors. All Blood Transfusion Centres in the U.K. send these statistics each month to the Department of Health and Social Security.

(d) Other

Fortification programs are generally monitored by routine spot check sampling of foods. In Canada this is the responsibility of inspectors of the Health Protection Branch of the Federal Government, in the U.S.A. the Food and Drug Administration, in Belgium l'Inspection des denrées alimentaires, in the United Kingdom the Area Health Authorities have environmental health officers who are responsible for enforcing the Food and Drugs Act.

In Belgium, occasional nutrition surveys are carried out by l'institut Belge de l'alimentation et de la nutrition.

There appears to be little monitoring of education programs although statistics are available on numbers attending clinics and classes in Canadian Provincial programs. Statistics on numbers of participants in the various food programs in the U.S.A. are compiled by the Food and Nutrition Service of the United States Department of Agriculture.

5. IS EFFECTIVENESS EVALUATED? HOW?

With increasing emphasis on accountability for health expenditures there is a heightened awareness of the importance of evaluating the effectiveness of nutrition programs. However, evaluation of effectiveness in terms of nutritional status does not yet seem to be an integral part of nutrition program planning.

One could consider that indirect evaluation has taken place through the various monitoring methods. Furthermore, the well known decrease in the incidence of nutritional deficiency diseases such as scurvy, pellagra and rickets has occurred because of improved nutritional status.

In Belgium, Norway and the U.K. there appears to be little planned, direct evaluation of effectiveness (until recently). In Canada some program evaluation is carried out but where this occurs it tends to be short-term and somewhat sporadic. Full scale evaluation of nutrition status, before and after a program, appears to be only rarely undertaken.

In the U.S.A the Supplemental Food Program for Women, Infants and Children (W.I.C.) has been evaluated to determine how well the general concept of the WIC program was implemented and which implementations were most effective. The results of a recent medical evaluation of the program are outlined in Annex VI.

6. HAVE UNINTENDED EFFECTS BEEN OBSERVED?

Since in Belgium and Norway there appears to be no evaluation of programs it is impossible to say what side effects, if any, have occurred in these countries. Unintended side effects were not mentioned in the U.S.A. or Canadian responses although one Canadian province did indicate that programs fostered a greater

degree of dependence on programs and services at the expense of a spirit of independence. The United Kingdom reported that the great increase in the popularity of bottle feeding which started in the forties may have stemmed from the introduction of subsidized National Dried Milk in 1940.

7. WHAT METHODS ARE USED TO ASSEMBLE DATA ON a) DIETARY INTAKE b) NUTRITIONAL STATUS?

(a) National statistics on the amounts of food available for consumption are used in all the countries questioned. These food disappearance figures can give a rough idea of the average per capita consumption.

Direct measures of food consumption of various types were reported for the U.S.A, Canada and the U.K. In the large scale nationwide survey of the type recently used in Canada and the U.S.A. the only feasible method was the 24-hour recall of foods eaten. The U.K. publishes estimates of food available at the dockside and farm gate, and also has a 'National Food Survey' which is a continuous survey of food purchases for domestic use. This survey, in which housewives participate on a voluntary basis, provides a continuous measure of the retail food entering households. Originally (1940 onward) the survey applied only to poor urban households but since 1950 the survey has included a representative sample of all households and thus monitors domestic supplies available to all. In the survey field the U.K. has opted for smaller scale surveys than the North American pattern and this has enabled a more in-depth analysis of 'at risk' groups to be carried out.

In these studies a weighed record is obtained of all food and drink consumed for 7 consecutive days, and in addition socio-economic, anthropometric, biochemical and haematological information is collected.

(b) This question has essentially been answered under Question 4, i.e. monitoring since this involves measurement of nutritional status.

CONCLUSIONS AND RECOMMENDATIONS

Results of the Questionnaire

The replies to the questionnaire on the ways in which governments attempt to influence dietary habits and nutrient intakes indicate a striking lack of uniformity among responding countries. In some, fortification of foods with vitamins and minerals was prominent; in others, rare. Food subsidies were in some instances used to improve nutrition; in others to sustain an agricultural industry. Nutrition education, while having the same general aims, was delivered via different systems. There was uniformity of purpose, however, for whenever attempts were made to influence dietary intakes as a public health measure the intent was always

to increase the intake of specific vitamins or minerals and to safeguard the health of all and especially of groups "at risk".

The effectiveness of these programs has not been evaluated in systematic fashion but two conclusions were warranted:

1) Deficiency disease seems not to be a major public health problem and to this extent nutrition programs have been successful.

2) Since a variety of approaches are used with success, it seems clear that no single approach is required and perhaps no single approach is suitable, for all countries.

The Nutritional Problems of Modern Society

Although nutrient deficiencies are no longer important public health problems in N.A.T.O. countries, it should not be concluded that there are no nutritional problems. Observations on the way people eat and the way they live and die have raised questions concerning the soundness of the affluent diet.

Table 1, which shows the leading causes of death in some N.A.T.O. countries, demonstrates the importance of cardiovascular disease as a public health problem. It is generally agreed that nutrition plays a role in the development of cardiovascular disease and many advisory committees have recommended a nutritional approach to prevention. The dietary advice of these advisory committees is remarkably similar (Table 2) but has not generally been incorporated into nutrition education programs nor influenced food production plans.

Obesity is very widespread in N.A.T.O. countries and is of particular health concern because it is a risk factor for hypertension and diabetes which in turn are risk factors for cardiovascular disease. Once excess weight has been acquired its permanent removal is difficult, and programs aimed at weight control in adults have been notoriously unsuccessful.

Excess fat acquired in childhood, which appears to be a problem of increasing importance, is particularly intransigent to treatment. In fact the obesity problem may start very early in life. A too rapid doubling of birth weight may result from overzealous bottle feeding in combination with excessively early introduction of solid foods. This, together with the mistaken parental notion that bigger is somehow better, may set the pattern towards a lifelong tendency to obesity. Although most overweight infants regain their normal percentile for weight by 5 years of age, about 20% do not and are at risk of becoming obese school children and adults. In attempting to break this undesirable chain of events the promotion of breast feeding and avoidance of too early an introduction of solid foods should be encouraged. The early years are not only important in physical development -- they are also the years when eating practices and attitudes to

food are established. Nutrition education, including guidance on the maintenance of desirable weight, should begin early in life.

Cancer is a leading cause of death in developed countries and it has been postulated that there are links between diets high in fat and low in fibre and the development of cancer of the bowel and breast.

Excessive alcohol consumption has also been implicated in the formation of certain cancers and it is well known that liver cirrhosis is a disease that mainly affects heavy drinkers. Alcohol, a source of energy often overlooked in the assessment of food intake, can also contribute to obesity and dietary recommendations should call for moderation in its use.

Dental caries, while not contributing to mortality statistics, is a major aesthetic and financial problem in N.A.T.O. countries. Poor dental health may, in addition, contribute to nutritional problems, particularly among the elderly. Nutrition is obviously a factor in the development of sound teeth and certain dietary habits (the imprudent use of sugar) are major factors in the development of dental caries. Fluoridation of water has been repeatedly demonstrated to reduce the incidence of caries.

The dietary changes which are usually advocated to reduce the incidence of cardiovascular disease are also appropriate for other nutritionally related diseases. They include a reduction in dietary fat, sugar, salt, moderation in the use of alcohol and an increase in whole grain cereals, fruits and vegetables. Some, but not all, authorities recommend a reduction in cholesterol intake and an increased consumption of polyunsaturated fat (linoleic acid). Such diets, especially those which are conservative with regard to cholesterol and linoleic acid, are suitable for all except infants and those on special therapeutic diets. Hence dietary advice is not complex, nor does it require major changes in the foods eaten.

Such changes must be accepted, if they are to be accepted at all, with a certain amount of faith. There is no hard evidence upon which to forecast the extent of improved health or decreased health care costs. However, the destructive role of present dietary habits seems so clear that defence of the status quo is unacceptable and the adoption of safe and potentially valuable modifications is warranted, especially if other controllable risk factors are reduced at the same time.

Strategy for Change

Direct Intervention

While it may be agreed that dietary change to combat disease is warranted, this cannot be accomplished by legislation. There are, nevertheless, a number of direct interventions that should be considered by governments. Diets under direct government control

(hospitals, nursing homes, schools, armed forces, prisons) should be of the preferred composition. Agriculture production and marketing policy should always be developed in the light of nutritional considerations. Food subsidies should be used to stimulate the production of and adherence to, the advocated diet and should never, whatever the reason, be used to stimulate unhealthy dietary habits. Informative food labelling should be considered, particularly for those foods modified with regard to major constitutents and for substitute foods. A danger that accompanies informative labelling is the apparent advantage conferred on the foods which require such labelling over the unmodified, natural, unlabelled foods. The development of substitutes for traditional foods should be permitted, but under control as to their nutrient content and at a pace that permits a careful and deliberate assessment of all implications to a change from traditional foods. The possibility of spawning a new generation of nutritional problems through the imprudent introduction of substitute foods should not be overlooked.

Related to direct intervention is the need for some sort of nutritional surveillance and regular evaluation of programs.

Education

In a democracy, the aim is not to control the diet of each individual, but rather to ensure that every individual should be given the information upon which to make an informed choice. Nutrition education cannot start too early and, for a number of reasons, should be available at all ages throughout life. An effective time to reinforce old messages and introduce new, is during the first pregnancy when the new mother is amenable to advice. There are a number of other occasions during the life cycle when nutritional advice is especially timely and welcome, for example, for school children and for adults on retirement. It must always be available, however, if for no reason but to counter the bad nutritional advice that constantly competes for the consumer's attention.

Advertising

The advertising and over-advertising of certain foods will not always be compatible with good nutrition. The market place has its own priorities and health is not necessarily one of them. In free societies this is nearly impossible to control. How can it be rationally decided how much advertising is appropriate for a food which should be used in moderation? What proportion of our health-care costs can be attributed to the advertising of so-called "Junk Foods"?

Counter-advertising in which the government matches bad advice with good, was not deemed to be a worthwhile strategy for it is unacceptable that the audience should pay for the original advertisement (as a consumer) and the counter advertisement (as a taxpayer). The best defence is a public well informed as to the

basics of nutrition and sufficient government regulations to prevent outright deception.

The Nutritional Challenge in Modern Societies

In N.A.T.O. countries and many other developed nations the food supply is now more abundant than ever before. The challenge to nutritionists in modern societies is therefore to correct those nutritional imbalances which have arisen not from a situation of want, but of plenty and which contribute to early death, disability and a grossly expensive health-care system. Our nutrition problems appear to bear little resemblance to those of countries with a chronic food shortage. They are, however, related; we are simply at the other end of a spectrum of malnutrition. In a world in which millions are starving it is clearly wrong to waste food, whether this be due to inefficiencies in the food system itself, or through the consumption of food that is not needed. Our actions should encourage a more rational use of food and food resources since this must ultimately benefit all of mankind.

Few social policies promise so many benefits at such little cost as the decision to change the affluent lifestyle of which diet is a principal component. Ultimately it is only individuals who can reduce the toll taken by the affluent diet by changing their behaviour. Governments, however, do have a responsibility to provide incentives and information which will enhance the nutritional health of their populations. Actions to bring about a less destructive eating pattern may involve direct government intervention by means of legislation, food subsidies, group feeding, food labelling and indirectly through education.

Judging by the variety of approaches taken to eliminate the earlier problem of nutrient deficiencies it seems unlikely that any one solution can or even should be advocated. Each country must find the solutions that will meet its unique needs. Changes will not come about easily and the greatest mistake would be to assume that humans adapt, quickly and painlessly, to whatever dietary regime evolves from modern society.

Health is, of course, more than a matter of nutrition and diet and we do not wish to imply that many other policies, which are not necessarily linked to food, will not have an important impact on health. Also, undoubtedly, much remains to be learned about the relationship between diet and health. Nevertheless we do not need to know all the answers before making practical recommendations. Our present health problems are so pressing that action must be taken now. To quote I Corinthians 14, 8: "If the trumpet gives an uncertain sound, who shall prepare himself to the battle?" Messages designed to influence the public must be loud, clear, safe, unequivocal and based on the best information currently available. With this in mind the following would warrant positive support in future nutrition strategy:

1) Breast feeding should be promoted as the ideal mode of infant feeding. This should be coupled with attempts to prevent the exceptionally early introduction of non-milk foods into the diet.

2) Obesity should be avoided and efforts must focus on prevention in view of the poor record of treatment.

3) A wide variety of nutritious foods should be eaten to ensure obtaining all necessary nutrients. Moderation is necessary to avoid too high an intake of fat, sugar and salt.

4) Reliance on highly refined foods should be avoided.

5) Alcohol should be used only in moderate amounts.

Finally, it is recommended that the C.C.M.S. convene regular meetings of experts to share information on nutritional surveillance, intervention and evaluation of such programs in N.A.T.O. countries. No other forum exists for regular mutal examination of these subjects.

TABLE 1. SOME LEADING CAUSES OF DEATH

CAUSE OF DEATH	ICD CODE	NORWAY 1975	ITALY 1973	CANADA 1974	U.K. 1974	U.S.A. 1973	NETHERLANDS 1974
		(a) Mortality Rate (Deaths/100M)					
Malignant Neoplasms of Digestive Organs and Peritoneum	150-159	65.9	56.8	48.5	80.3	46.0	66.0
Breast Cancer	174	14.6	13.8	13.9	23.0	15.3	18.7
Ischemic Heart Disease	410-414	258.5	150.3	230.3	311.5	326.0	176.6
Arteries, Arterioles and Capillaries	440-448	19.2	32.6	25.8	40.6	12.4	25.9
Diabetes Mellitus	250	7.2	23.6	14.1	10.5	18.2	10.4
Accidents, Motor Vehicle Traffic	E810-E819	14.0	25.3	27.7	12.8	26.5	18.4
		(b) Total Deaths					
Malignant Neoplasms of Digestive Organs and Peritoneum	150-159	2642	31067	10919	39507	96549	8945
Breast Cancer	174	587	7550	3131	11319	32143	2539
Ischemic Heart Disease	410-414	10359	82108	51817	153250	684066	23921
Arteries, Arterioles and Capillaries	440-448	769	17838	5801	19991	58676	3503
Diabetes Mellitus	250	289	12894	3164	5142	38208	1405
Motor Vehicle Traffic Accidents	E810-E819	560	13849	6225	6276	54347	2494

TABLE 2. RECOMMENDATIONS OF 15 EXPERT COMMITTEES ON DIETARY FAT AND CORONARY HEART DISEASE

Country	General Population (GP) High Risk Group (HR)	Fat Content of Total Calories (%)	Increased PUFA (Poly-unsaturated Fatty Acids)	PUFA-SAFA Ratio (Poly-Unsat.Fatty Acids to Sat.Fat.Acids)	Daily Dietary Cholesterol (mg)	Reduction of Sugar	Advised Labelling of Fat Content of Foods
UNITED STATES							
Inter-Soc. Commission for Heart Disease Resources 1970	GP HR	<35	Yes	1.0	<300	-	Yes
Amer. Health Found. (1972)	GP	35	Yes	1.0	300	Yes	Yes
Amer. Medical Assoc. (1972)	HR	Substantial decrease in saturated fat	Yes	-	Reduce	-	Yes
Amer. Heart Assoc. (1973)	GP	35	Yes	1.0	300	Yes	Yes
White House Conf. (1973)	GP	35	Yes	-	300	-	Yes
NORWAY, SWEDEN AND FINLAND, 1968	GP	25-35	Yes	-	-	Yes	Yes
UNITED KINGDOM							
DHSS COMA Report (1974)	GP	Reduce total fat, especially saturated	No	-	-	Yes	-
Royal College Physicians & British Cardiac Soc. (1975)	GP	Towards 35	Yes	-	Reduce	Yes	Yes
NEW ZEALAND							
Heart Foundation (1971)	GP	35	-	-	300-600	-	
	HR	35	Yes	1.0	300-600	-	Yes
Royal Society (1971)	GP	-	No	-	Reduce	-	-
	HR	Avoid excess saturated fat	Yes	-	Reduce	-	-
AUSTRALIA							
Natl. Heart Found. (1974)	GP						
	HR	30-35	Yes	1.5	<300	Yes	-
Academy of Science (1975)	GP	35	Yes	1.0	<350	Yes	Yes
GERMANY							
(Federal Republic) (1975)	GP	Reduce sat. fat	Yes	-	300	-	-
THE NETHERLANDS (1973)	GP	35	Yes	1.0	250-300	Yes	Yes
Intl. Soc. of Cardiology (1973)	HR	<30	Yes	>1.0	<300	-	Yes

SOURCE: Physiological Effects of Dietary Linoleic Acid. A.J. Vergroesen
Statement prepared for Federal Trade Commission hearing on nutrition information in food advertising, 1976.

NORTH ATLANTIC TREATY ORGANIZATION SURVEY

ANNEX I

CANADA

NUTRITION AND HEALTH

NATO SURVEY - CANADIAN RESPONSE

I. What methods are used to change dietary habits?

Education

Educational matters fall primarily under the jurisdiction of the provinces. However, the Federal Government has a responsibility as an information provider and also in the provision of guidelines in matters considered of national importance in the field of nutrition. For example:

1) Canada's Food Guide

This is a guide to food selection which presents a nutritionally adequate meal pattern of food selections in which foods are grouped according to their nutrient content. It is used as the basic teaching tool and forms the basis of most of the nutrition education material produced by the government. Various ways are used to bring it directly to the attention of the consumer, one of them being its inclusion in welfare, child allowance and pension cheque envelopes. It is used extensively by school teachers, public nurses and community workers to assist them in their nutrition teaching.

2) Nutrition Teaching Aids

This publication was originally designed for public health nurses but is now widely used by both professional and lay people. It contains the basic information as in the Food Guide but also includes more detailed treatment of special topics as, for example, nutrition and pregnancy, overweight problems, fad diets. It also contains an extensive bibliography for persons who wish to pursue the study of certain topics in greater depth.

3) Healthful Eating

A publication aimed at the public which again contains the food guide as the basis of food selections. Each chapter deals, in a non-technical way, with the particular nutrient needs of each physiological group.

4) Canadian Mother and Child

A non-technical publication designed to offer mothers assistance in dealing with day-to-day health matters that arise during pregnancy and the baby's first year of life.

5) Dispatch

A fact sheet produced on a bimonthly basis and distributed through a mailing list. They are devoted to various topics concerned with health protection - food, drugs, labelling, regulations, hazardous products and devices. A number have dealt with nutrition topics.

6) Health and Fitness

A reprint of a Swedish publication aimed at generating an awareness of the importance of physical fitness. A section of the book emphasizes the importance of a proper diet in a physical activity program.

7) Canadian Dietary Standard

A statement of the daily amounts of energy and essential nutrients considered adequate to meet the physiological needs of all healthy persons in a population. The dietary standards are widely used in planning diets and for procuring food supplies for groups. They also provide basic information for the development of policies regarding the production, distribution and consumption of food. The publication is also used as a teaching tool in colleges and universities.

8) Guidelines for School Food Programs in Canada

A report prepared by a committee of federal and provincial nutritionists to support the efforts of health and school officials, community groups and individuals across Canada to improve school food services.

All of the foregoing publications are produced by the Department of National Health and Welfare although a number of different divisions within the department are involved. The Department of Agriculture also produces a number of consumer publications concerned with food although these are generally recipes, meal plans etc and the nutrition content of these publications is small.

Each Provincial Government is responsible for its own health and welfare programs and therefore the priority given nutrition and the educational methods used to improve nutritional health vary.

The major targets for nutrition education have traditionally been the prenatal group, infants and the school age child. However, changing lifestyles, new health problems generated by an affluent life style and changing age patterns within the Canadian community have resulted in an increased appreciation of the pivotal role that nutrition plays in the total life cycle. Therefore efforts are made to integrate nutrition as a component of the total health education program. The extent to which this has developed varies from province to province.

For example, most provinces have fairly well established prenatal and school programs. Prenatal programmes often take the form of classes taught by Public Health Nurses at clinics or in association with hospitals. Nutritionists and dietitians also counsel individuals after referral from physicians in an attempt to improve the nutritional status of "high risk" pregnancies.

Nutrition education activities related to school children vary widely in scope and format. However, all provincial nutrition departments are involved in the production of education packages - publications, films and other audio-visual aids. Learning packages are used as a resource material for teachers and workshops are conducted for them to introduce their use in schools. In some provinces workshops are also conducted for parents with a view to improving the dietary habits of the whole family. Teachers are often given in-service training to guide them in choosing effective methods and resources for teaching nutrition. Several provinces have a nutritious breakfast or snack or school milk program usually with a nutrition education component as an integral part of the program.

With the growing awareness of the health implications of obesity and overweight more attention is being given to weight control programs. Nutritionists from the departments of health are invited to speak to groups interested in weight reduction and weight control. They also develop publications and aids to support their teaching. Two provinces have programs in which a nutrition-plus-exercise concept is presented and in which counselling is based on individual assessment.

Although the elderly have not had much visibility in the past in health programs in a number of provinces attention is being given to expanding and improving nutrition services to the elderly.

All provinces are involved in general education campaigns in which their aim is to create an awareness of the nutritional value of foods, to impart a basic knowledge of nutrition and to assist consumers in selecting foods which can be used to form nutritionally adequate meals in a variety of eating patterns.

These efforts can take a variety of forms. For example, developing pamphlets and brochures on specific topics, mass media releases, provision of resource personnel at workshops, food and nutrition displays and exhibits at shopping malls and fairs.

Fortification

While there is discussion over the use of the terms enrichment, fortification and restoration, the term fortification is used here as an 'umbrella' term to include all cases where nutrients are added to foods in order to improve or maintain their nutritional value.

TABLE 1. FOODS TO WHICH A VITAMIN, MINERAL NUTRIENT OR AMINO ACID MAY BE ADDED

	FOOD	NUTRIENT
1.	Breakfast Cereals	Iron, thiamine, riboflavin, niacin
2.	Fruit and vegetable drinks and apple juice	Vitamin C
3.	Infant Cereal Products	Thiamine, riboflavin, niacin, calcium, phosphorus, iron, iodine
4.	Margarine and other similar substitutes for butter	Vitamin A, vitamin D
5.	Alimentary pastes	Thiamine, riboflavin, niacin, iron
6.	Prepared infant formulas	Vitamin A, thiamine, riboflavin, niacin, pyridoxine, d-pantothenic acid, folic acid, vitamin B_{12}, vitamin C, vitamin D, vitamin E, calcium, phosphorus, iron, sodium, potassium, iodine, zinc, copper, magnesium, manganese, lysine, methionine, tryptophane
7.	Flavoured beverage mixes for addition to milk	Vitamin A, thiamine, niacin, vitamin C, iron
8.	Simulated meat and poultry products	Thiamine, riboflavin, niacin, pyridoxine, pantothenic acid, folic acid, vitamin B_{12}, iron, magnesium, potassium, zinc, copper, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophane, valine
9.	Instant breakfasts	Vitamin A, thiamine, riboflavin, niacin, vitamin C, iron
10.	All forms of milk	Vitamin D
11.	Skim milks	Vitamin A
12.	Evaporated milks	Vitamin C
13.	Enriched flour	Thiamine, riboflavin, niacin, iron, magnesium, pyridoxine, folic acid, d-pantothenic acid
14.	Table salt and substitutes	Iodine
15.	Dehydrated potatoes	Vitamin C

The control of fortification is a federal responsibility. The Food and Drugs Act and Regulations is administered by the Department of National Health and Welfare. The Regulations under this Act permit the addition of specified vitamins and minerals to certain specified foods (See Table 1).

Until 1975, with the exception of iodine to salt and the addition of vitamins and iron to instant and ready-to-eat breakfasts, the addition of vitamins and minerals to foods was optional and left to the discretion of individual manufacturers. In 1975 regulations governing the nutrient composition and quality of simulated meat and poultry products were promulgated. These regulations stipulate the minimum protein quantity and quality and the minimum levels of 12 nutrients that such products must contain. In a similar manner the nutrient quality of products simulating whole egg has been stipulated. In addition such a product must not contain more than 3 mg of cholesterol per 100 grams.

In March 1976 the range of products requiring mandatory addition of vitamins and minerals was increased.

All forms of milk must contain added vitamin D and skim and partially skim milk must also contain added vitamin A. All forms of evaporated milk must also contain added vitamin C. Flour must contain added thiamine, riboflavin, niacin and iron and may contain added magnesium, vitamin B_6, folic acid and pantothenic acid.

Regulations proposing the mandatory addition of vitamin C to fruit and vegetable drinks (i.e. juice substitutes) and the mandatory addition of vitamins A and D to margarine are being considered.

Subsidization

Subsidization of food by the Federal Government in order to maintain the retail price of staple foods at a low level concerns only two foods in Canada - wheat flour and skim milk powder. These subsidies have primarily an economic basis and were not intended to alter food habits.

In some of the provinces, money from taxation enables certain nutrition services to be provided free or at minimal cost. In others, provincial departments of agriculture have apple and milk programs. In some northern schools, free milk, nutritious snacks and school lunch are also provided. In certain provinces financial assistance is provided for those in need of therapeutic diets (including those for inborn errors of metabolism) prescribed by a physician. Services providing meals delivered to the home (meals-on-wheels) for the elderly housebound are also available in many provinces.

II. What are the aims of such programs?

Education

The primary aim of the Federal Government's input into nutrition education is to assist Canadians, through its publication and current awareness campaigns, to select a nutritious diet. The Federal Government is also putting renewed emphasis on prevention in the health care field and this has resulted in attention being focussed on the nutrition-related diseases, particularly obesity, cardiovascular disease and dental caries, that have a characteristically high prevalence in western societies.

The Provincial Governments also have these same broad aims in view in their programs but complement the Federal effort through work of the provincial nutritionists who provide the essential link with the community at large. They attempt to create an awareness of the importance of nutrition in maintaining good health and avoiding health problems. At their contact points with the public they try to motivate and assist people to change unsatisfactory dietary habits, either to correct deficiency disease or prevent the hazards of excess. A particularly key group is pregnant women. Other important groups are preschool and school age children and here the aim is to assist children in acquiring positive attitudes towards food and develop acceptable nutrition practices.

Fortification

The major purpose of food fortification is to ensure that the food supply is nutritionally adequate. In Canada the aims of this program are threefold:

1) to restore to original levels nutrients lost in processing.

2) to add nutrients to prevent the occurrence of deficiency states, and

3) to ensure, by the addition of nutrients, that substitute foods are not nutritionally inferior to the traditional foods they replace.

Subsidization

Although based on economic rather than nutritional considerations removal of the subsidies would have some impact on eating patterns. For example, it has been estimated that elimination of the flour subsidy would increase the price of a loaf of bread by 7 - 9 cents. If skim milk powder were not subsidized the price of a quart of milk would be approximately 6 cents higher. However, it should be noted that the aims of the two subsidies are quite different. In the case of wheat flour the objective is to keep the price of bread stable so that it is not affected by fluctuations in the price of wheat in world markets, whereas in the case of skim milk powder the aim of the subsidy is to move a surplus into consumption.

III. How are the programs monitored?

(a) Surveillance of Nutritional Status

A nationwide survey of nutritional status was carried out in 1970-2. This was the first national nutrition survey conducted in Canada and as far as is known is probably the most comprehensive survey ever conducted of the nutritional status of the population of a country. It is not feasible to conduct a survey of this scale on a regular basis but specific questions of concern in the area of nutrition can be included in an ongoing survey of health status to commence in 1978. Nutrition does not figure prominently in the initial survey - only questions related to infant feeding practices are included.

The stated objective of the Nutrition Canada Survey was to provide a sound body of precise scientific information on the nutritional status of the Canadian population. This information was to be used as the basis for planning future informational, educational, public health and welfare programs, for the evalution of Food and Drug Regulations affecting the nutritional quality of the national food supply and for the identification of problem areas where further research is needed. (A summary of the relevant findings is included in Appendix A).

Only two provinces have utilized measures of nutritional status as a means of monitoring their programs. One involves a school lunch program and the other an individualized diet and physical fitness counselling program.

(b) Food Disappearance Data

This is a measurement technique routinely used by a federal agency (Statistics Canada) to give an indication of the amounts of food available for distribution at the retail level. Estimated supplies of different foods within the country can then be translated into calories and nutrients to compute per capita amounts available for human consumption. This gives a very crude estimate of what is available on average for consumption but does not give any information about loss or wastage or distribution of intakes within the population.

(c) Health Statistics

Nutritional factors are often an important component of infant mortality and morbidity and the morbidity and mortality due to coronary heart disease, hypertension, diabetes and alcoholism. Morbidity and mortality rates are compiled annually by Statistics Canada. High infant mortality rates can be used as gross indicators of need for better health and nutrition services. Compiling all causes of death and looking at deaths attributed to each cause can be a useful indicator with regard to programs of prevention. Birth weights are recorded by Statistics Canada for all provinces except Newfoundland. Morbidity statistics are of limited value in that they only relate to hospital statistics and not to the public at large. It is to correct this deficiency that the continuing health survey is to be conducted.

(d) Other

Compliance to the fortification program is routinely monitored by Food and Drug Inspectors of the Health Protection Branch. Monitoring the veracity of label claims is the responsibility of the Department of Consumer and Corporate Affairs.

The educational component of nutrition programs is not generally monitored in the usual sense although some programs have statistics on numbers attending clinics, classes, etc. However, data on specific topic areas within a program are not often available.

The federal Health Protection Branch publishes a fact sheet on various aspects of food and drug use. The use of these pamphlets is monitored by revising a mailing list in response to a questionnaire.

In all provinces a regular report of all activities is compiled by each nutritionist. One province reported that time studies are carried out over a two week period during each year and these are used as indicators in evaluating the distribution of services.

IV. Is effectiveness evaluated? How?

In Ontario the effectiveness of in-service programs for professionals is evaluated by questions concerning relevance and intended use of knowledge gained. Changes in attitudes are also assessed. In some programs, particularly school and prenatal, some measure is made of food habits before and after the program of education. In most cases this will take the form of a 24 hour recall of the previous day's intake. School evaluations may involve pre- and post-program quizzes and may also include behaviour ratings and attendance assessments. The major evaluation of diet and exercise programs is through indications of weight loss after the program. When the mass media are used for nutrition education messages evaluation of their impact may be made by assessing the number of requests for further information. In one province comprehensive evaluation of an intervention program involves the assessment of nutritional status before and after the initiation of a school lunch program.

Really effective systems for evaluating programs appears to be lacking. Methods currently in use seem to be very dependent on the type of program under consideration and also are mainly concerned with short term effectiveness evaluation. It also appears that evaluations are carried out rather sporadically in a somewhat unstructured fashion and are not an automatic component of every nutrition program.

V. Have unintended effects been observed?

Generally speaking no unintended effects have been observed. However, one province noted that there was a tendency for some programs to encourage greater dependency rather than stimulating independent behaviour.

VI. What methods are used to assemble data on (a) dietary intake, (b) nutritional status?

(a) Dietary Intake

All provinces use either the 24 hour recall or some form of food record or diet history when estimating dietary intake. In educational programs 24 hour recalls are frequently used for motivation and counselling and diet histories in weight reduction programs. Short term food habit surveys have also been conducted as background for program planning. They have also been used in classroom situations to provide information on dietary habits. In two provinces where school lunch programs were in progress the 24 hour recall was used in the evaluation of the program. In the national survey of nutritional status carried out in 1970-2 (Nutrition Canada Survey) the 24 hour recall method was also used to estimate dietary intake.

(b) Nutritional Status

For the most part comprehensive assessment of nutritional status, involving biochemical, clinical and anthropometric measurements are not carried out on a routine basis. All these measures, including dietary assessment by the 24 hour recall method, were used in the national survey of nutritional status conducted during 1970-2. In only two major studies, a school lunch program and a nutrition-fitness counselling project, is such comprehensive evaluation of nutritional status being used. Certain laboratory tests are carried out routinely in clinics and some limited information is available from physicians and hospitals on referrals but usually there is no continuous program of assessment.

APPENDIX A

NUTRITIONAL STATUS OF CANADIANS AS FOUND IN THE NUTRITION CANADA NATIONAL SURVEY

An Overview

A high proportion of individuals in most physiological groups were found to have poor folic acid status based on measurements of serum folate levels. This is a difficult finding to interpret because other tests to confirm this finding were not included. Folic acid intakes were computed in the Nutrition Canada Report on Food Consumption Patterns and were also found to be low in comparison to recommended intakes. There is however, uncertainty regarding optimal intake of folic acid and there is some discussion indicating that recommendations may contain too wide a safety margin. This is clearly an area where further work is needed, particularly in clinical research, before any definitive statements can be made.

The survey results indicated that the diets of many adolescent girls and pregnant women should contain more calcium and vitamin D. The elderly had barely adequate calcium intakes and the medium intake of this group (approx. 100 I.U.) was low enough to be of concern if these individuals were confined indoors for long periods. There was, however, no biochemical evidence of sub-clinical rickets.

Urinary thiamine excretion values indicated that a high proportion of middle-aged and adult men had low urinary thiamine values. Certain clinical signs (as noted under Clinical Status Related to Nutritional Health) occurred more frequently among the elderly than among other groups and this reinforced the concern expressed about the dietary intakes of the elderly.

The nutrient intake data indicated that only men had median intakes above the standard of adequacy. Iron reserves, as measured by transferrin saturation were inadequate especially in women, children and adolescents of both sexes. Severely reduced haemoglobin levels indicative of anaemia were not found. Nevertheless, the dietary and biochemical evidence of poor iron status was considered sufficiently strong to conclude that a reassessment of enrichment practices was warranted.

Median vitamin C intakes appeared adequate for most groups in the provincial populations, however a small proportion in all groups were classified at high risk of developing a deficiency on the basis of their serum vitamin C levels. The highest proportion in this category (15.6%) was found among elderly males.

Special Concerns

1. The Elderly

Because of the variety and complexity of problems encountered by the elderly, the result of the interaction of economic, social, physiological and psychological factors, there is often little margin

of safety and they may be especially vulnerable to nutritional problems. The findings of the Nutrition Canada Survey are certainly in accord with this statement. The results show that there was quite a high prevalence of obesity despite low caloric intakes, the latter resulting in compromised intakes of almost all micro-nutrients as well as protein. Biochemical tests also indicated a higher prevalence of sub-normal values for protein, vitamin C, folic acid and iron in the elderly than in younger groups.

A number of clinical signs which may be related to nutrient deficiencies were also observed more commonly in the elderly. While it is difficult to distinguish clinical signs of malnutrition from those of non-nutritional degenerative disease, the higher prevalence of clincial lesions does reinforce the concern expressed regarding the dietary and biochemical evidence.

These findings are especially noteworthy in view of the limitations of the survey with regard to this age group i.e. they were probably the healthiest segment of the age group studied - ambulatory, motivated to attend clinic, ability to recall diets, etc. We still know very little, for example, about the house-bound elderly who are likely to be at a higher risk of developing nutritional problems than those encountered in the survey.

The special problems of interpreting biochemical and clinical findings should be noted. The difficulty of distinguishing non-nutritional disease symptoms from those arising from malnutrition has already been mentioned and similar problems arise in the interpretation of biochemical data. Our armentarium of tests is really quite limited and we do need to develop new and better tests of cellular function before we categorically define the presence of malnutrition. Furthermore there is a simple lack of knowledge of well-established normal values for the elderly and one often encounters a polarized viewpoint - some workers regarding as evidence of deficiency a biochemical measurement which is below that regarded as usual in younger people while others will dismiss such findings as a normal consequence of aging. It is not easy to test either hypothesis and without supporting evidence many biochemical findings should be interpreted with reserve.

2. Income and Nutritional Status

Initial examination of the effect of income on nutritional status showed no consistent effects. This was the case when comparisons were made between geographical areas classified by the 1961 census as being "low income" or "other income". However a later study based on the actual income of the individual examined and family size, did show that income and nutritional status (as measured by biochemical and anthropometric variables) were related and that often the risk of nutritional disease was highest in the lowest income categories. This finding also emphasizes the inherent limitations of census enumerations i.e. their infrequency, thus they cannot reflect rapidly changing socioeconomic variables.

The principal findings of this study were as follows:

1) Low economic status most adversely affected middle aged women (40-64 years) and elderly men (65+ years) and generally speaking lower income had more of an effect on the nutritional status of women (20-64 years) than men of the same age.

2) Considering the adverse effects of lower economic status for individual nutrients, the most striking result was a clear relationship between economic status and the level of vitamin C in the blood serum in most physiological groups. A similar relationship for folic acid levels in serum was also evident for most groups. Iron deficits as measured by serum transferrin saturation values were also income related in children and adolescents of both sexes (5-19 years).

3) Income levels were found to be associated with the prevalence of obesity: highest proportions at risk were found among young and middle-aged females in the lowest income category whereas the reverse was true for the comparable male groups.

3. Obesity

The Ponderal Index (height/cubic root of weight) was used as an indicator of overweight. Insurance statistics for males show a relationship between increasing mortality and decreasing Ponderal Index (i.e. increasing overweight) with an upward shift in mortality at a Ponderal Index of 12.5 and a very sharp increase at 11.6. Values below the latter level are associated with frank obesity. There are a number of limitations in its use (its applicability to children, women and ethnic groups other than North American whites has not been thoroughly tested). Nevertheless it is a screening method and will be particularly useful for future comparative purposes. Based on this index, the prevalence of obesity ranged from 4.3 to 8.2 percent in men and from 9.9 to 36.9 percent in women. From 30 to 50 percent of adults were classed as overweight (PI of between 12.5 and 11.6). As has been mentioned, income level was found to be significantly related to the prevalence of obesity.

A preliminary study of average weights and heights has also been carried out and were compared with the results of a survey conducted in 1953. Compared to this earlier survey there has been a slight increase in height recorded for most ages. There has also been a small increase in weight up to about 30 years of age but differences between the surveys after this age are less distinct. From this data it is not possible to estimate whether people today are fatter than 20 years ago. More exact estimates of the degree of fatness and further comparative work will be carried out when all the anthropometric indices have been analysed.

Despite technical difficulties in measuring exactly what we mean by obesity there seems little doubt that it is a problem of major public health significance.

4. Indians and Inuit

The results for the National Survey clearly show that these groups are in much poorer nutritional health than the rest of the population. Generally speaking the nutrition problems were more severe in Eskimos. Particularly noteworthy were the findings of poor intakes of calcium, vitamin D and vitamin C, low body reserves of iron, low blood levels of serum folate and vitamin C in most groups. In addition there was a high prevalence of bleeding gums, a common clinical observation in scurvy. Although interpretation of this finding is difficult since advanced periodontal disease is also characterized by friable, easy bleeding gums, the high prevalence of this sign together with the very low intakes and serum levels of vitamin C strongly suggest the presence of scurvy. Another finding to cause concern, was the very low caloric intake of pregnant Eskimo women; intakes low enough to have damaging effects on foetal development.

5. Food Consumption Patterns

The Nutrition Canada Survey Report on Food Consumption Patterns indicated that for elderly males and adult females (including pregnant) the intake of dairy products was insufficient to meet the recommended intakes of dietary calcium.

The consumption of meat, poultry, fish and eggs was high, certainly higher than that required to supply adequate amounts of protein and fat. The percentage of calories from fat was approximately 40 percent.

The enrichment of cereals with thiamine and iron obviously increased the intake of these nutrients and the use of iron supplements was evident for the infants whose intake was twice that of the recommendations. The data also showed that it was difficult for women to meet the requirements for iron without careful selection of iron rich food.

The promotion of fruits and vegetables needs renewed emphasis, particularly in view of the apparently poor status of vitamin C and folic acid. Sugar consumption contributed about 7 percent of the caloric intake for those over 12 years of age.

The majority of pregnant women took supplements (88%) and clearly if milk, fruit and vegetables were increased this supplementation (apart from iron and folate) would be unnecessary. It is noteworthy that 87% of those who took supplements did so on the advice of a physician but only 19% reported receiving any dietary advice from this source.

NORTH ATLANTIC TREATY ORGANIZATION SURVEY

ANNEX II

UNITED STATES OF AMERICA

NATO STUDY ON NUTRITION AND HEALTH

There is an intensity of effort across a broad spectrum of nutrition related activities in the country. Promotion and maintenance of health through good nutrition is the goal of many activities undertaken at the Federal, state and local government levels, as well as, by voluntary, non-profit organizations (for example the American Heart Association, the American Diabetic Association, the American Tuberculosis Association and the American School Food Service), professional associations (for example the American Medical Association, the American Nurses Associations, the American Dietetic Association, the American Dental Association, and the American Academy of Pediatrics), and industry. To enumerate in any detail the efforts of all of these groups would result in a voluminous document which would be almost impossible to read. For this reason, we have chosen to highlight several programs to highlight our efforts in nutrition services and research. In addition, documents related to some of these nutrition programs have been enclosed if further information on them is required. Although there are an abundance of governmental and non-governmental efforts aimed at promoting good nutrition across our country, the challenge still remains one of seeing that knowledge of good nutrition is translated into health dietary habits. There is a critical need for more behavioral research to focus on more effective ways to assist the public to adopt and maintain lifetime health food habits. The NATO countries might consider behavioral research as an area of focus for future collaborative efforts directed towards world-wide promotion of good nutrition.

1. What methods are used in your Province or country to change dietary habits?

a. Education

Nutrition education is an area of great importance in this country in light of findings of studies such as the Ten State Nutrition Survey 1968-1970 which indicate that a significant proportion of the population is malnourished or is at high risk of developing nutritional problems. Obesity is a particularly significant public health problem in the United States. Food habits are shaped early in life and are difficult to alter later on. For this reason particular emphasis has been placed on promoting sound nutrition habits in our young people through school health education programs. The Assistant Secretary for Health, Dr. Theodore Cooper, in a recent statement before the Select Committee on Nutrition and Human Needs, United States Senate stressed the need for nutrition education in our schools. He said, "Over the long run, one of the most productive ways to improve the health status of the Nation is to increase nutrition education in the schools. We plan to enlarge our cooperative efforts with the Office of Education in the development of model curricula and specialized techniques to assist in the teaching of elementary and secondary school children about the role of nutrition in total health and how they can practice more healthful food

purchasing and food consumption habits. Use of nutrition labelling of food as one focus for such programs and discussion of the nutritional basis for the selection of the components of school lunch programs can serve to reinforce desired practices with respect to diet and nutrition.

There are also under consideration proposals to develop public nutrition education programs to alert people to current, scientific information on the links between nutrition and health. The Food and Drug Administration, for example, already has under way a media-based program to educate the public on nutrition labelling. Meetings with nutrition authorities and media experts will help to establish the substantive content of such programs and to assist in the design of specific communication strategies."

Over the past few years there has been increasing consumer demand for informative nutrition labelling. The Food and Drug Administration (FDA) has undertaken a comprehensive review of food labelling and the regulations that control it. The result of this review has been a series of regulations on labelling. Nutrition labelling now provides consumers with information concerning the nutrient content of the food. It is an important educational tool in assisting the consumer to make choices with regard to the most nutritious product among those that are acceptable. Many governmental agencies, such as the National Institutes of Health have prepared and distributed education booklets on nutrition, for example. Facts about Nutrition which discusses good dietary practices, malnutrition, obesity and nutritional requirements at various stages in life such as infancy and pregnancy and old age. It provides practical information such as meal plans, menus and tables of desirable body weights. Patients with specific dietary needs often receive the booklet Diet Guide for Patients on Chronic Dialysis with outlines the dietary regimen which 27,000 patients using artificial kidneys must follow. Other booklets focus on the relationship between nutrition and dental health. Still others relate to How a Mother Affects Her Unborn Baby. The demand for some of these booklets is overwhelming as in the case of the distribution of 2,000,000 copies of a handbook published by the National Heart, Lung, and Blood Institute on the dietary management of hyperlipidemia for physicians and nutritionists, as well as individual patients care manuals. Voluntary organizations, such as the American Dietetic Association and others distribute nutrition audio-visual educational materials too numerous to identify here. Many agencies in the Federal Government are involved in health care programs of which nutrition is an integral part. A few of these governmental programs will be highlighted here. The way in which these agencies monitor and evaluate the effectiveness of these activities is usually program specific.

The National Institute of Drug Abuse (NIDA) is funding a number of important projects relating to nutrition. Specifically, through a series of research and demonstration projects designed to meet the special treatment need of female addicts and drug abusers, attempts have been made to improve patients' abilities as parents. Part of this process involves education in nutrition.

It is recognized that malnutrition is a frequent secondary effect of many forms of drugs and therefore by focusing on the client's nutritional problems, a treatment program can help to restore the client, as well as the client's family, to better physical health. In addition, NIDA has funded two research projects which are examining the effects of methadone treatment on pregnancy and infant development. Included within these studies will be nutritional considerations affecting the health of neonates.

The National Institute on Alcohol Abuse and Alcoholism (NIAAA) is funding a number of projects specifically relating to nutrition. These grants are primarily concerned with the relationship of alcohol ingestion and certain types of nutritional deficiencies. Over half of the funds go to sponsoring research to examine the effects of alcohol intake and thiamin deficiency. The subjects are studied for cardiac hypertrophy, liver malfunction, and brain damage. The NIAAA is also sponsoring research to gain a better understanding of the adverse effects of alcohol on the biochemical and physiological mechanisms involved in cell proliferation, maturation (including protein synthesis) and life span.

Nutrition education activities of Health Services Administration agencies include the following:

(A) Support dietary counselling services required by patients in health delivery programs to prevent, treat or control disease,

(B) Develop and support in-service education and training in nutrition for physicians, nurses, other health care providers, state surveyors of Medicare and Medicaid provider organizations, food service personnel, and others involved in nutritional care,

(C) Provide nutrition education to the general public through the support of mass media programs, response to public inquiries, etc. e.g. HSA nutrition staff assisted with the development of the public awareness campaign on nutrition (a joint effort of USDA, DHEW, NAS and Grocery Manufacturers of America). See enclosed publication - Food is More Than Just Something to Eat. Nutrition staff in state and local health agencies who are supported by HSA programs plan and conduct local radio and TV programs on nutrition,

(D) Develop and disseminate nutrition education materials for health care providers and the public e.g. examples enclosed are:

(1) Summary Report, Maternal Nutrition and the Course of Pregnancy which was prepared to transmit important recommendations and findings from a MCH/Title V Research Grant Project on Maternal Nutrition to Physicians, Nurses and other health care providers,

(2) Feeding the Child With a Handicap addressed to parents of handicapped children and

(3) Calorie Control, Nutrition and Dietetics, Indian Health Service, Shiprock.

The Bureaux of HSA have used informal and formal methods of assessing effectiveness of nutrition education efforts e.g. a review of selected field reports from nutritionists in maternity care projects identified a change in physician practices relating to weight control and sodium restriction in prenatal care as a result of the dissemination of the report on Maternal Nutrition and the Course of Pregnancy.

In the area of education of health professionals there have been many education activities directed at improving the knowledge and skills of nutritionists, dietitians and other health care providers in delivering high quality nutrition services to our people.

In the Federal government the Department of Health, Education and Welfare emphasis has been placed on nutrition and dietetics through allied and public health Traineeship grants as well as project grants to support curriculum development in schools of public health. Baccaclaureate programs for dietitians have been developed through support from the Bureau of Health Manpower to incorporate one year of supervised clinical experience in nutrition. It is planned that increased emphasis will be given to incorporating more on the science of nutrition into our medical school curricula.

The Department of Health, Education, and Welfare is actively engaged in the training and continuing education of community health workers, especially those practicing public health nutrition, health education, environmental health and health administration and planning.

In the allied health profession of Dietetics, the Department is encouraging the implementation of "coordinated integrated programs" at the undergraduate level to assure clinical training experience in dietetics.

The American Dental Association will complete in Fiscal Year 1977 a dental school curriculum survey which includes nutrition education. This will be available for planning nutrition activities in dental schools.

Recently a series of workshops were sponsored by the Health Services and Mental Health Administration (HSMHA) for nutritionists for the purpose of improving their skills in goal-oriented program planning and implementation and evaluation in relation to nutrition in health care for mothers and children. (A final report of HSMHA-MCH Project No. 339, Program Planning in Maternal and Child Nutrition is enclosed.)

In a related activity, in September, 1976 the National Heart, Lung, and Blood Institute (NHLBI) of the National Institutes of Health sponsored a two-day workshop for the nutritionists and dietitians in the research studies and clinical trials supported

by the NHLBI. The purpose of the workshops was to enhance the patient teaching skills of the participants and acquaint them with behavioral techniques that might be utilized in assisting patients to maintain good nutrition, and achieve a reduction in weight and cholesterol levels as prescribed by their physician.

Nutrition Research

Based on a survey of research projects maintained in the United States Department of Agriculture's Current Research Information System and in the Smithsonian Institution's Science Information Exchange, 959 research projects conducted during 1968-69 were directly related to the subject of human nutrition. Approximately 30 million dollars were allocated to human nutrition research during the year with 90 percent of the funds being supplied by various Federal government agencies. On the other hand, 64 percent of those funds were expended on human nutrition research performed by universities.

The primary goal of 51 percent of the human nutrition research projects was the prevention and amelioration of specific physiological abnormalities through improved instruction. This compares with 17 percent allocated to health nutrition research directly concerned with normal physical and mental development and maintenance, 7 percent on research aimed at improving nutrition related food practices and 25 percent of health nutrition research of broad application.

Over 78 percent of health nutrition research funds were allocated to activities primarily concerned with determining the nutrient requirements in humans; 8 percent to research on determining the nutrient composition of foodstuffs; 10 percent to research factors related to food consumption; and 4 percent to the study of nutrition education and public programs aimed at implementing food knowledge. (1)

---

1. An Evaluation of research in the U.S. on Human Nutrition, Report No. 1, A Survey of Research on Human Nutrition Supported and (or) Conducted by Public Research Organizations. Prepared by: A Joint Task Group of the U.S. Department of Agriculture and the State Universities and Land Grant Colleges. October, 1971, issued by Science and Education Staff, U.S. Department of Agriculture, Washington, D.C.

Nutrition Research Program of the National Heart, Lung, and Blood Institute

The National Institutes of Health (NIH) is de facto the lead agency responsible for Federal nutrition research. It is actively engaged in extensive programs in both basic and applied research, as well as training and education. Some of the NIH supported studies focus on the behavioral aspects of obesity, studies of psycho-social, cultural and physiological factors which determine food selection and nutrient intake, and the means by which these may be modified. Other studies deal with the application of nutritional knowledge in preserving health and treating disease.

In this regard the National Heart, Lung, and Blood Institute, Division of Heart and Vascular Diseases supports a number of nutrition-behavioral research studies attempting to find, among other things, the most effective educational and (or) behavioral techniques to assist individuals to adopt and maintain long term dietary changes. An outline of these studies follows:

Contracts

Multiple Risk Factor Intervention Trial (MRFIT)

The principal objective of the Multiple Risk Factor Intervention Trial (MRFIT) is to determine, in a group of approximately 12,000 men, whether or not the reduction of serum cholesterol, reduction of elevated blood pressure and elimination or reduction of cigarette smoking among men will produce a significant reduction in mortality from coronary heart disease.

The objective of the nutrition intervention modality of MRFIT is to bring about changes in eating habits to achieve a reduction of serum cholesterol. The dietary intervention program utilizes the techniques and knowledge of group dynamics, group process and behavior modification.

Lipid Research Clinics (LRC)

The Lipid Research Clinics Program is a national research program designed to increase knowledge related to the etiology, diagnosis and management of lipid disorders, especially those associated with premature vascular disease. Nutrition is an important component of both the Prevalence Study and Prevention Trial of the LRC program.

The Prevalence Study seeks to determine the prevalence of lipid abnormalities and associations with coronary heart disease among differing population groups in North America and the USSR. The nutritional objectives of this study include the collection of standardized dietary data so that it may be possible to determine whether or not differences in lipid distributions in the population surveyed are attributable to differences in diet.

The Prevention Trial was designed to determine in a group of approximately 3600 men whether or not the reduction of serum cholesterol will produce a significant reduction in mortality from coronary heart disease. The nutritional objectives of this study are (a) to achieve moderate long-term dietary intervention and (b) to collect standardized dietary information to assess group changes in dietary intake.

An important outgrowth of both the MRFIT and LRC programs has been the development of a unique community resource of highly trained nutritionists having an intimate knowledge of the current food market and the ability to give it practical application.

Hypertension Detection and Follow-Up Program (HDFP)

The HDFP is a multicentered cooperative effort to determine the effectiveness of systematic antihypertensive therapy in reducing clinical morbidity and mortality in a wide spectrum of persons with elevated blood pressure in these 14 community-based populations. Non-intensive nutrition counselling is offered to the overweight participants.

Epidemiology studies of coronary heart disease. Demographic clinical, dietary, physical and autopsy data are being evaluated in a Puerto Rican population.

Grants

National Research and Demonstration Center

Research and Demonstration Centers are being funded in order to hasten the translation of basic research findings to patient care practices. One of the Center's projects has a nutrition component which attempts to compare results achieved in lipid lowering using conventional educational methods versus behavioral modification techniques. In addition, the effectiveness of a community diet education program for lowering plasma cholesterol and triglyceride levels will be assessed.

Specialized Centers of Research (SCOR)

Arteriosclerosis:

The SCOR program is concerned with particular components of human and animal diet in relation to hyperlipidemia and the etiology of arteriosclerosis CHD. Although a major emphasis of these studies is to establish and characterize the basic mechanisms by which the specific dietary components (fats, lipids and CHO) contribute to vascular disease, several of the SCOR's are involved in whole or part, in studies to determine the extent to which dietary manipulation can prevent or modify the course of risk factor development and disease in humans. The latter include a single study on the development and use of behavior modification strategies to affect appropriate dietary habits and weight reduction, and a study of factors in dietary compliance and adherence.

In April, 1975 the National Heart, Lung, and Blood Institute held a Nutrition Behavioral Research Conference (1) to foster a greater sharing of information across these projects and identification of future research needs.

At present, the Division of Heart and Vascular Diseases is having a series of papers prepared by noted behavioral scientists, educational technologists and nutritionists in the field. These papers will assess the nutrition behavioral research to date related to motivation, compliance and use of behavioral interventions in fostering adoption and (or) change of lifetime dietary habits.

Lung:

The Newborn Lung Center is being funded to study the natural history of respiratory distress syndrome in infants. The protocol includes a comparison of nutrient management procedures.

Program Project Grants

Program project grants are investigator initiated research proposals that are multidisciplinary but thematic in nature. Primarily these are concerned with basic research into the etiology, treatment and prevention of heart disease. Nutrition related projects are aimed at increasing our understanding of the relationship of specific dietary components to heart disease. Currently these studies include nutrition and development of the cardiovascular system, dietary manipulation to reverse atherosclerotic lesions, and dietary effects on different aspects of lipid metabolism.

Research Grants

Nutritional components of the regular research grants are similar to the program projects. Primarily, basic research is being conducted into the role of specific nutrients in metabolic processes related to heart disease. These are being explored in a variety of ways using both animal models and human participants. One study seeks to determine the factors related to compliance with dietary intervention therapy.

Miscellaneous

USDA Reimbursable Agreement

Many of the NHLBI programs are attempting to correlate diet with blood lipoproteins and other risk factors. Central to the success of all these programs is accurate nutrient information which will reflect the current food market. To hasten the acquisition of these data, the NHLBI is supporting a comprehensive review of the literature. These findings will be summarized in a USDA publication on fat and fatty acid composition of foods.

---

1. Proceedings of the Nutrition Behavioral Research Conference, sponsored by the National Heart, Lung, and Blood Institute, NIH, Bethesda, Maryland, DHEW, Pub. No. (NIH) 76-978.

All contracts and grants awarded by the National Heart, Lung, and Blood Institute undergo periodic evaluation through written reports and special evaluation meetings.

Nutrition Behavioral Research Conference

The National Heart, Blood, and Lung Institute held a Nutrition Behavioral Research Conference at the Institute in April, 1975. The purpose of this meeting was to assist all of the investigators in our grant and contract programs that contain nutrition behavioral research to become better acquainted with each others' research efforts, identify areas where educational material and assessment tools developed could be shared and make recommendations to the Institute concerning the future research needs. A copy of the proceedings of this conference is enclosed.

National Heart, Lung, and Blood Institute Working Conference on Health Behavior

In May, 1975 the National Heart and Lung Institute sponsored a conference on Health Behavior which was held in Bayse, Virginia. The purpose of this conference was:

1) to provide substantive information and advice to the Institute from the behavioral/social science community on health behavior problems related to the prevention and control of heart, lung, and blood disorders;

2) to provide opportunity for behavioral/social scientists to become intimately familar with health behavior problems (and research opportunities) extant in heart, lung, and blood disorders; and

3) to be yet another step in the continuing process of behavioral and biomedical scientists becoming familiar with the unique contributions each would make toward resolving problems of mutual interest and concern.

Promotion of health through good nutrition was integrated throughout the conference discussions.

A copy of the proceedings of this conference is enclosed.

b. Fortification

In the United States, development of new types of food products that may replace traditional foods, the increasing use of highly refined foods, and the introduction of foods that are formulated from highly purified constituents, have created concern about possible nutritional deterioration of the food supply. Although it is well-recognized that the availability of nutrients in some foods is improved by processing, and that processing may destroy toxic products in foods; nevertheless, concern over possible deterioration has led many American food manufacturers to consider fortification of their products with the nutrients in which they are deficient.

We have taken remedial action in fortifying or enriching certain foods with critical nutritional factors which otherwise might be in short supply in the diet of some of our people. (For example, adding Vitamin D to milk and Vitamin A to margarine, certain B Vitamins and iron to flour and cereals, and iodine to salt.) A list of Federal Food, Drug and Cosmetic Act References to nutritional aspects of foods is enclosed.

The regulation of the food supply has also provided substantial benefits to the nutritional health of infants and the medically disadvantaged. As a result of regulatory action, infant formulas sold in the United States are the safest and nutritious in the world. Similar quality claims can be made for foods for special dietary purposes such as those used to treat inborn errors of metabolism.

The Food and Drug Administration has established nutrition labelling regulations which are intended to differentiate among foods, dietary supplements and drugs as follows:

- No claim may be made that a food is a significant source of a nutrient unless that nutrient is present in the food at a level equal to or in excess of 10 percent of the United States Recommended Daily Allowance in a serving. No claim may be made that a food is nutritionally superior to another food unless it contains at least 10 percent more of the United States Recommended Daily Allowance of the claimed nutrient per serving.

- If vitamins and/or minerals are added to a food to the extent that a single serving provides 50 percent or more of the United States Recommended Daily Allowance of any one of the added vitamins and/or minerals, such food is classified as a dietary supplement.

- If vitamins and/or minerals are added to a food to the extent that a single serving contains 150 percent or more of the United States Recommended Daily Allowance for any one of the added vitamins or minerals, the food is classified as a drug and subject to drug, rather than food, regulations.

In addition to the percent United States Recommended Daily Allowance of the nutrients in a serving of the product, food labels may also carry another column showing the total nutrient intake of that food on a daily basis. Bread, for example, may show the percent United States Recommended Daily Allowance of nutrients in two slices, with an additional column declaring the total nutrient content of six slices, and entire day's intake. There must, of course, be reliable data to support the claim that the food is consumed more than once during the day, (e.g. six slices per day, two per serving, in the case of bread).

Package labels will bear the nutrient content of the packaged product, rather than of the product after preparation in the home. However, a manufacturer may provide an additional column

of information which includes the total nutrient content of the finished product. A cake mix, for example, will be labelled with the nutrient content of the mix, but may also have an extra column content after preparation with additional specified ingredients according to package directions.

I. The Federal Food, Drug and Cosmetic Act
References to nutritional aspects of foods:

Section	Title	Purpose re Nutrition
§402(d)(3)	Adulterated Food.	Specifies the conditions under which non-nutritive substances may be used.
§403	Misbranded Food.	Identifies the criteria of misbranding.
§403(h)(1)		Relates specifically to the failure to meet standards of quality, i.e., flour, rice, bread.
§403(j)		Requires nutrition information if special dietary uses of the food are purported or represented.

II. Existing Regulations which Influence Nutritional Quality

§1.10	Food; labelling; designation of ingredients.	The descending order of ingredients identifies the order of the components and thus influences the nutritional quality of foods.
§1.17	Food; nutrition labelling.	This is the most direct influence on nutritional quality.
§1.18	Labelling of foods in relation to fat, fatty acid, and cholesterol labelling.	Provides lipid information for those who are modifying the diet in response to physicians recommendations for a low cholesterol/saturated fat diet.
§3.17	Labelling of oleomargarine of margarine.	Subparagraphs (b)(6) and (7) specify the manner of labelling for vitamins A and D, respectively.

II. Existing Regulations which Influences Nutrition Quality (continued)

Section	Title	Purpose re Nutrition
§3.31	Label declaration of salt in frozen vegetables.	Specifies that added salt must be listed as an ingredient, thus assures the information for those who must restrict their consumption to salt.
§3.78	Combinations of nutritive and non-nutritive sweeteners in canned fruits.	Both economic and nutrition related; this section requires that the use of the non-nutritive sweetener result in at least a 50% reduction in calories to justify its use; 25% may be allowed for specific products.
§3.87	Salt and iodized salt; label statements.	Provides identification of the iodine and the statement "This salt supplies (does not supply) iodine, a necessary nutrient."
§15.10	Enriched flour.	Provides for the addition of vitamins B_1, B_2, Niacin, and iron and calcium (optional).
§15.30	Enriched bromated flour.	Provides for the addition of vitamins B_1, B_2, Niacin, and iron and calcium (optional).
§15.60	Enriched self-rising flour.	Provides for the addition of vitamins B_1, B_2, Niacin, and iron and calcium (optional).
§15.140	Enriched farina.	Provides for the addition of vitamins B_1, B_2, Niacin, and iron and calcium (optional), plus optional vitamin D.
§15.513	Enriched corn meals.	Provides for the addition of vitamins B_1, B_2, Niacin, and iron and calcium (optional), plus optional vitamin D.
§15.514	Enriched corn grits.	Provides for the addition of vitamins B_1, B_2, Niacin, and iron and calcium (optional), plus optional vitamin D.

II. Existing Regulations which Influences Nutrition Quality (continued)

§15.525	Enriched rice.	Provides for the addition of vitamins B_1, B_2, Niacin, and iron and calcium (optional), plus optional vitamin D.
§16.9	Enriched macaroni products.	Provides for the addition of vitamins B_1, B_2, Niacin, and iron and calcium (optional), plus optional vitamin D.
§16.10	Enriched noodle products.	Provides for the addition of vitamins B_1, B_2, Niacin, and iron and calcium (optional), plus optional vitamin D.
§16.11	Enriched vegetable macaroni.	Provides for the addition of vitamins B_1, B_2, Niacin, and iron and calcium (optional), plus optional vitamin D.
§16.12	Enriched vegetable noodle products.	Provides for the addition of vitamins B_1, B_2, Niacin, and iron and calcium (optional), plus optional vitamin D.
§16.14	Enriched macaroni products made with non-fat milk	Provides for the addition of vitamins B_1, B2, Niacin, and iron.
§16.15	Enriched macaroni products with fortified protein.	Provides for the addition of vitamins B_1, B_2, Niacin, and iron, plus optional calcium.
§17.2	Enriched bread, rolls, buns.	Provides for the addition of vitamins B_1, B_2, Niacin, and iron, plus optional calcium.
§18.2	Milk, identity.	Provides for optional addition of vitamin A or vitamin D.
§18.10	Low fat milk.	Mandatory addition of vitamin A, optional addition of vitamin D
§18.20	Skim milk.	Mandatory addition of vitamin A, optional addition of vitamin D
§18.520	Evaporated milk.	Mandatory addition of vitamin D, optional addition of vitamin A.

II. Existing Regulations which Influences Nutrition Quality (continued)

Section	Title	Purpose re Nutrition
§18.525	Concentrated milk.	Optional addition of vitamin D.
§18.545	Non-fat dry milk fortified.	Mandatory addition of the vitamins A and D.
§19.565	Blue cheese.	If the milk is bleached, vitamin A must be added to compensate for its destruction
§19.567	Gorgonzola cheese.	If the milk is bleached, vitamin A must be added to compensate for its destruction
§19.590	Provolone cheese.	If the milk is bleached, vitamin A must be added to compensate for its destruction
§19.591	Caciocavallo siciliano cheese.	If the milk is bleached, vitamin A must be added to compensate for its destruction
§19.595	Parmesan cheese.	If the milk is bleached, vitamin A must be added to compensate for its destruction
§19.610	Romano cheese.	If the milk is bleached, vitamin A must be added to compensate for its destruction
§19.615	Asiago cheeses.	If the milk is bleached, vitamin A must be added to compensate for its destruction
§20.8	Mellorine.	Mandatory addition of vitamin A
§27.54	Canned pineapple juice (fortified with Vitamin C).	An alternative in the standard allowing the addition of the vitamin C.
§27.60	Canned prune juice (Vitamin C added).	An alternative in the standard allowing the addition of the vitamin C.
§27.80	Canned applesause.	Allows the optional addition of vitamin C.

II. Existing Regulations which Influences Nutrition Quality (continued)

Section	Title	Purpose re Nutrition
§45.1	Margarine.	Mandatory addition of vitamin A, optional addition of vitamin D.
§100	Nutritional quality guidelines for foods.	§100.1 provides the general principles for these guidelines. A proposed amendment will extend these principles to the addition of nutrients to foods. §100.5 provides a minimum nutritional profile for "heat and serve" dinners.
§102	Common or usual names for non-standardized foods.	The definitions of these foods may, in addition to the percent of characterizing ingredients, have specific nutrient composition specifications such as might be necessary to avoid the imitation labeling.
§121	Food Additives.	From a nutrition standpoint this list provides the legal basis for the addition of nutrients, particularly the GRAS list, §121.101.
§125	Label statements concerning dietary properties purporting to be or represented for special dietary uses.	§125.3 relates to the label statements for vitamins. §125.4 relates to the label statements for minerals. §125.5 provides the labeling information relating to infant foods. §125.6 provides the labeling requirements for foods used in the control of body weight, calories, percent protein and available carbohydrate. §125.7 specifies label statements relating to non-nutritive constituents. §125.8 relates to the labeling of hypoallergic foods.

II. Existing Regulations which Influences Nutrition Quality (continued)

Section	Title	Purpose re Nutrition
		§129.9 specifies the labeling for sodium as a means of regulating the intake.
III. Existing but Stayed Regulations		
§80.1	Dietary supplements of vitamins and minerals; definition, identity, label statements.	This regulation would provide a standard which would assure a balanced and rational formulation of vitamins/minerals in supplements.
§125.1	Definition and interpretation of terms.	This part of the special dietary use regulation identifies the recognized essential nutrients and their U.S. RDA and other definitions relating to the use of such foods.
§125.2	General label statements; dietary properties; values; placement.	Requires a statement of the special dietary use of the food and specifies certain prohibition relative to such foods.
§125.3	Label statements relating to vitamins and minerals.	This would be an updated version of the old §125.3 and §125.4.
IV. Proposed Regulations		
§15.525	Revision of enriched rice standard.	Updates the standard and recognizes improvements in technology and will include the enrichment of coated rice. Anticipated to be final in the second quarter of 1976.
§53.1	Tomato juice; identity; label statement of optional ingredients.	This amendment to the standard will allow the addition of vitamin C so that it can also comply with the proposed guideline for vitamin C fortified fruit/vegetable beverages. Stayed, pending finalization of the "guideline" or a hearing.

IV. Proposed Regulations (continued)

Section	Title	Purpose re Nutrition
§100	Nutritional Quality Guidelines	
§100.1	General Principles governing the addition of nutrients to foods.	This amendment to the general principles for nutritional quality will be applicable to nutrient additions to all foods. Anticipated finalization third quarter 1976.
§100.6	Noncarbonated vitamin C fortified fruit or vegetable type beverage products.	Will provide for a rational addition of vitamin C to beverages which may substitute for beverages such as orange or tomato juice which are major dietary sources of the vitamin. Anticipated finalization second quarter 1976.
§100.7	Main dish products.	Will provide a minimum nutritional quality expected in a food which is the principal part of a meal. Anticipated finalization fourth quarter 1976.
§100.8	Formulated meal replacement/or bases.	Specifies the entire nutrient profile for a formulated or fabricated food intended to replace an entire meal. Anticipated finalization fourth quarter 1976.
§100.9	Fortified hot breakfast cereals.	Provides guidelines for the rational fortification of cereals. These guidelines were drawn separately because of the marked difference in their manufacture. They may likely be combined in the final guideline. Anticipated finalization fourth quarter 1976.
§100.10	Fortified ready-to-eat cereals.	

IV. Proposed Regulations (continued)

Section	Title	Purpose re Nutrition
§102.22	Plant protein products.	This common or usual name regulation will establish nutrient profiles and protein quality. The nutrient requirements will depend upon the product use, meats/cheese, substitutes or extenders. Anticipated finalization second quarter 1976.

V. Petitions or proposals being considered from outside the Food and Drug Administration

§100	Fruit and cereal/fruit for infants and children one - four years.	SUBMITTED by: Gerber
§102	Percentage ingredient labelling in baby foods.	SUBMITTED by: Center for Science in the Public Interest
§102	Peanut spreads.	SUBMITTED by: Kraft
§1.17	An amendment to the nutrition labelling to exempt a food using an enriched non standardized food as an ingredient from mandatory nutrition labelling.	SUBMITTED by: Anderson-Clayton, with specific reference to a "nutritionally equivalent" cheese substitute in such products as pizza
§102	Common or usual name for low cholesterol or cholesterol free egg substitutes.	The "low cholesterol" request was submitted by Tillie Lewis Foods; the cholesterol-free designation was submitted by General Mills
§100	Nutritional quality guideline for fortified precooked infant cereals.	SUBMITTED by: National Canners Association
§1.17	Amendment to nutrition labelling regulations which would provide a mechanism for labelling "fast foods".	SUBMITTED by: McDonald's Corporation

c. Subsidization

School Lunch Program

School lunch programs are a very important part of nourishment for many children. Particularly in the low income ratio states, school lunches contributed to a substantial proportion of the total nutrient intake of many school children. The contribution of school lunch to overall nutrition has been particularly important among black children.

School Breakfast Program

The school breakfast program is a grant-in-aid program which is available to schools and other certain non-profit institutions to provide a breakfast for children.

Supplemental Food Program

Low income mothers-to-be, mothers and young children from birth through pre-school years receive supplemental foods, primarily, through local health centers.

Food Stamp Program

The purpose is to enable low income households to buy more food to improve their diets. To purchase food stamps the participant pays a sum of money based on family size and net family income. They receive a larger volume of stamps than what they originally pay the money for. In August, 1976 there were approximately 17.4 million people participating in this Program.

Child Care Program

This Program is for preschool and school age children in child care facilities. It provides a breakfast, lunch and supper for the children. Approximately 300,000 children participated in August, 1976.

Supplemental Food Program for Women, Infants and Children

The Food and Nutrition Service of the United States Department of Agriculture provides grants to departments of health in each state or to Indian tribes to administer the Special Supplemental Food Program for Women, Infants and Children (WIC). This is a nutrition supplementation activity for low-income pregnant and nursing mothers and children. Under its provisions, persons judged to be "at nutritional risk" by medical or nutritional professionals due to low income and patterns of inadequate nutrition are eligible to receive free each month, about twenty dollars worth of high-protein, high mineral, and high vitamin foods. WIC programs are run by medical clinics in a medical orientation.

Public law 94-105 enacted in October, 1975 extended the program through fiscal year 1978 at an annual budget of 250 million dollars.

The efficiency and effectiveness of the WIC program depends not only on policy decisions made in Washington, D.C., but also on operational and administrative decisions made at state, program area, and clinic offices. The United States Department of Agriculture gives funds to State departments of health (or equivalent agencies), and these state agencies are responsible for operating the program. There is then a division of responsiblity between state and local offices for the design of vouchers, monitoring relations between WIC and participating food vendors, and recipient satisfaction with the WIC program.

A survey of ninety-six WIC clinics and thirty-six hundred WIC participants was conducted in April 1976 to determine how the general WIC concept had been implemented and which implementations were most efficient and effective. Attached is a summary of the highlights of the contents of the official report: "Frequency and Effectiveness in the W.I.C. Program Delivery System, "U.S. Department of Agriculture, Publication No. 1138, September, 1976."

2. What are the aims of such programs?

The purpose of each program is incorporated into the statments regarding that program under Question #1.

3. How are the programs monitored?

Nutritional Surveys

There are individuals and population groups in the United States with nutritional problems that have potentially deleterious effects on their health status.

Nutritional surveys are needed periodically in order to assess, through clinical and biochemical examination of substantial numbers of individuals representative of different groups within the population, the nutritional status of the United States population. In order to determine the causes of nutritional problems turned up through clinical and biochemical studies, information about the nutrient intakes of the subject population groups is required, together with information defining the characteristics of the groups.

Survey of Food Intake and Nutritive Value of Diets of Men, Women and Children in the United States, Spring, 1965.

As part of a nation-wide household food consumption survey made by the United States Department of Agriculture in 1965 - 1966, information was obtained on the food intake for one day of

individual members of the households interviewed. This was the first time estimates of the food eaten in a 24-hour period by individuals had been obtained on a nationwide basis. Approximately 14,500 reports of food intake were collected for the men, women and children included in the study. The sample of approximately 6,200 households of which the 14,500 individuals were members was drawn to be representative of all housekeeping households in the United States. The following are highlights of this survey:

Highlights

1. Average diets for most sex-age groups approached (90 to 100 percent) or were above the Recommended Dietary Allowances set by the Food and Nutrition Board of the National Academy of Science-National Research Council in 1968 for calories and five of the seven nutrients studied - protein, vitamin A, thiamine, riboflavin, and ascorbic acid. Calcium and iron were the nutrients most often found below allowances.

2. Calcium and iron furnished by the day's food were more than 30 percent below recommended allowances for several groups, especially of girls and women. The iron in diets of infants and children under 3 years was about 50 percent below recommended amounts. However, the recommended allowances for iron for some age groups, as indicated by the Food and Nutrition Board, are not expected to be met by ordinary food products alone. The Board indicates that ordinary food products might be expected to provide 6 mg. of iron per 1,000 calories. Diets of children aged 1 through 8 years and boys and girls 9 through 19 years did not contain this much iron.

3. Infants had intakes of calories and several nutrients well above the Recommended Dietary Allowances yet the food of infants from birth through 11 months furnished less than the recommended amounts of iron, and that of infants under 2 months, less than recommended amounts of ascorbic acid.

4. In general, the diets of males met the allowances for more nutrients than the diets of females. Except for iron, the diets of children under 9 years of age were above recommendations. The diets of adolescent girls and women were below recommended amounts of calcium, iron, and thiamine, and for some age groups, vitamin A, and riboflavin. Older men also had diets low in calcium, vitamin A, riboflavin and ascorbic acid.

5. The population of calories derived from the fat ranged from an average of 39 percent for infants to 45 percent for men 20-64 years.

6. For persons in the income class under $3,000, and for persons in the Southern Region, the nutrients most often found below recommended allowances were ascorbic acid and vitamin A, in addition to calcium and iron.

7. Quantities of most foods eaten by men and boys were larger than those eaten by women and girls of the same age. Exceptions were tomatoes and citrus fruit, dark-green and deep-yellow vegetables, and other vegetables (except potatoes) and fruits.

8. For most foods, consumption peaked for males in the late teens and early adulthood. There was less difference by age in amounts of food eaten by females than by males. There was less difference among age groups in consumption of vegetables and fruits, than in consumption of higher calorie foods.

9. Use of vitamin or mineral supplements during the 24-hour period for persons over 3 years of age ranged from about 12 percent for girls 15-17 years and boys and men 15-34 years to about 34 percent for men and women 75 years and over. Over half (55 percent) of the infants under 1 year and 43 percent of the young children 1 through 2 years used vitamin or mineral supplements. The nutritive content of these supplements was not obtained or taken into account in the calculation of the nutritive value of diets as reported above.

Ten State Nutrition Survey, 1968 - 1970

The results of the Ten State Nutrition Survey, the largest ever conducted in the United States indicated that a significant proportion of the population surveyed was malnourished or was at high risk of developing nutritional problems. Among the various groups surveyed adolescents between the ages of 10 to 16 years had the highest prevalence of unsatisfactory nutritional status. Persons over 60 years of age showed evidence of general undernutrition which was not restricted to the very poor or to any single ethnic group. There was evidence that many persons made poor food choices that led to inadequate diets and to poor use of the money available for food. Poor dental health associated with low levels of dental care was encountered in many segments of the population. Obesity was found to be most prevalent in adult women, particularly black women. In some age groups more than 50 percent of adult women were found to be obese. Men were less frequently obese, although white males in both the adolescent and the adult age groups had a relatively high prevalence of obesity when compared with black males. With regard to problems with specific nutrients iron deficiency anemia as evidenced by a high prevalence of low levels of hemoglobin is a widespread problem within the population surveyed. The data from this survey showed no evidence of iodine deficiency and no relationship between the prevalence of goiter and iodine status, suggesting that the

goiter seen did not result from iodine deficiency. Goiters were less prevalent in the population studied and were smaller than those found in the years before iodization of salt became widespread. Iodized salt was not regularly available or used in the communities surveyed.

The information of this survey clearly demonstrates that even in the United States of America the population is not uniformly well-nourished. It also established the need for periodic assessment of the nutritional status of the population and the incorporation of these findings into future nutrition programs aimed at fostering dietary habits among our people.

A copy of the report of the Ten State Nutrition Survey, 1968 - 1970 is enclosed.

Health and Nutrition Examination Survey, United States, 1971 - 72: Dietary Intake and Biochemical Findings.

The HANES Program

The HANES Program was undertaken by the National Center for Health Statistics in response to a directive from the Secretary, Department of Health, Education and Welfare to establish a continuing national nutrition surveillance system under the authority of the National Health Survey Act of 1956. This system has as its purposes the measuring of nutritional status for the United States population and monitoring the changes in this status over time. Such a system would permit the use of health data as an objective test of programs to improve basis for allocation of scarce program resources.

The HANES is the first program to collect measures of nutritional status for a scientifically designed sample representative of the United States civilian, noninstitutionalized population in a broad range of ages, 1-74 years. Other earlier nutrition surveys, such as the Ten State Nutrition Survey, have had more limited objectives. The probability sample design permits estimates to be made for the total population, while at the same time permitting more detailed analysis of data for certain groups at high risk of malnutrition - the poor, preschool children, women of childbearing age, and the elderly. This is made possible through use of differential sampling of these high risk groups and appropriate weighting of the data.

Summary of Preliminary Findings

Preliminary dietary intake and biochemical test findings among individuals 1-74 years of age in the noninstitutionalized population of the United States as obtained in the Health and Nutrition Examination Survey of 1971 - 1972 are presented and analyzed in the accompanying report. Analysis of data for certain groups at high risk of malnutrition - the poor, preschool children, women of childbearing age, and the elderly are included. Age,

sex, race, and income level differences in dietary intake and biochemical tests are also analyzed.

These preliminary data permit only limited general conclusions concerning the nutritional status of the United States population. There is evidence of a deficiency with respect to the nutrient iron, based on both the dietary intake and biochemical data. This dietary deficiency occurs at all age levels and is not limited to persons in the below poverty level group. The biochemical iron deficiency is more prevalent in the younger age groups particularly children of ages 1-5 years. In the older age groups, biochemical iron deficiency appears to be much less of a problem in spite of a greater percentage of persons with low hemoglobins indicating anemia. The cause of this anemia is not known at this time. The present report provides needed basic data on the distribution of the total United States population with respect to various biochemical test values and nutrient intakes. These should aid in identifying areas in which re-examination of standards may be necessary and they provide baseline data against which future change can be measured. In addition to this, comparisons among subgroups do provide some evidence of relative deficiencies of specific nutrients, in particular age, sex, race, and income groups in the population.

Obesity is an important nutritional problem in American adults, particularly among females, with more than one-fourth classified as obese, based on skin fold measurements. Obesity is most frequent among black females, affecting nearly one-third at ages 45-74 years.

This year, the HANES II program began. This will provide the first look at change in nutritional status over time of data collected during 1976-78.

Over the next several years we hope to expand our surveillance program operated by the Center for Disease Control (CDC) in nine states to a national nutrition surveillance program. This step will enable us to maintain current information on the status of individuals and groups with nutrition problems in specific sections of the country and to design intervention programs (in collaboration with state and local authorities) to reduce the disease consequences of poor nutrition.

Stimulated by these studies and the recommendations of the White House Conference on Food, Nutrition, and Health, governmental and non-governmental agencies have been placing increasing emphasis on nutrition in their program plans.

NORTH ATLANTIC TREATY ORGANIZATION SURVEY

ANNEX III

UNITED KINGDOM

UNITED KINGDOM

NATO COMMITTEE ON THE CHALLENGES OF MODERN SOCIETY
Study on Nutrition and Health

In the UK little has been done towards changing dietary habits except indirectly, and we know very little about how to do it effectively. Even economic stresses do not seem to influence dietary appreciably, although affluence has done so in the longer term.

1. What methods are used to change habits e.g. education, fortification, subsidization?

In the United Kingdom all three of the above methods have been used not necessarily to change dietary habits but as a matter of expediency to assure health of the population in 1939 onwards when food supplies were threatened and recently for economic reasons.

Fortification and restoration of nutrients

In the United Kingdom the fortification of two foods is mandatory:

(a) Since 1920, margarine must be fortified with vitamins A and D.
(b) Since the 1940s certain nutrients must be added to white flour.

In the early 1940s, because of a possible shortage of dairy products and a need to restrict imports of wheat, legislation enforced the addition of calcium carbonate to all flour except that from 100% extraction, and also raised the extraction rate for flour for the "national loaf". After the war there was concern that a return to white bread might lead to deficiencies of some vitamins and minerals. Fortification of white flour with calcium carbonate was continued, and thiamin, niacin and iron were compulsorily added in amounts which restored the vitamin and mineral content to that of 80% extraction flour. Riboflavin was not added because milk is the chief source of this nutrient in the United Kingdom diet. The addition of these nutrients to white flour still remains mandatory.

Many other foods are fortified with certain nutrients on a voluntary basis. For example, all infant milk foods are fortified with vitamins A, C and D and with iron. Some control is exercised in that labelling and claims made by manufacturers must comply with legislation.

'Novel' foods are under consideration. Recommendations have been made for fortification of vegetable protein foods which are manufactured to simulate meat, but the recommendations are not yet mandatory.

Subsidization

The UK has a long history of subsidized food programs which recognise that expectant and nursing mothers, infants, preschool and school children are the most likely vulnerable groups at risk of malnutrition. Cheap milk and vitamin supplements are provided for expectant and nursing mothers and children up to the age of 5 years. At school, subsidized school meals are available to all, and some children get free school milk.

Expectant and nursing mothers

(a) Milk - from 1940-1971 all expectant and nursing mothers were entitled to one pint of whole milk per day at half-price throughout pregnancy and lactation. Bottle-fed infants were entitled to one packet of subsidized National Dried Milk (NDM) per week which was equivalent to the 7 pints of household milk provided for the lactating mother. These benefits were free to the poor. From 1971 onwards, the benefits were no longer available to all expectant and nursing mothers, but the number of large, poor families who qualified for free benefits was increased. From 1976 National Dried Milk (an unmodified dried cows' milk enriched by vitamin A, C and D and with iron) was discontinued. Mothers who qualify for free benefits and who do not breast feed can choose and obtain free of charge any of the modified infant milks recommended by their professional advisers.

(b) Vitamin supplements have been available since 1940 to expectant and nursing mothers. The supplements are cheap to all and free to mothers of large poor families who qualify for free milk. The supplements are now in the form of tablets containing vitamin A, C, D, calcium and potassium iodide. Iron tablets (cheap or free) are also available.

Preschool Children

Children aged 0 to 5 years can obtain cheap vitamin drops (vitamins A, C and D). These are free to poor large families and replace the original cod liver oil and orange juice. In addition, these families obtain 1 pint of household milk per child free of charge.

School Children

(a) Milk - in 1934, a school milk scheme was started in which children could buy milk at school at a subsidized price and those from poor families received it free. In 1944, the Education Act made it compulsory for local education authorities to provide 1/3 pint of milk at reduced price to all school-children on every day of the school year. In 1946, the Act was amended so that the milk supplied in school was free of charge. This benefit was withdrawn from secondary schools (i.e. children over 12 years of age) in 1968, and in 1971

from the junior schools (i.e children 7 to 12 years). At present, 1/3 pint free school milk is available daily during the school year to all children in nursery schools (aged 3 to 5 years), and in the infant schools for children from 5 years up to the end of the school year in which they reach their seventh birthday, to older children for whom it is authorized by the school doctor for reasons of health, and to children in the special schools for handicapped pupils.

(b) School meals - since 1906, Local Education Authorities have had powers to provide school meals but the Education Act of 1944 made it compulsory for a school dinner to be provided for all who wanted it. School meals are heavily subsidized (at present to about 60% of the overall cost) and the normal charge is remitted for parents in poor circumstances. Minimum dietary standards are set for the school meal. On average six million school meals are provided daily and about 10% of these are free.

Other foods

Certain food staples are also subsidized e.g. milk and butter (since 1972) and bread, flour, cheese and tea (since 1974).

Education

Basic teaching of the healthy about nutrition is carried out within the Health Services by the primary health care team, that is family doctors, home nurses, midwives and in particular by the health visitors in their regular contact with expectant and nursing mothers of young children. In the schools much nutrition education is taught during home economics, biology and similar courses. Both the health and education services would look for support in curriculum preparation and provision of material to the Area Health Authority. In the 90 or so Area Health Authorities under the reorganization of the National Health Service, provision is made for the appointment of health education officers although not all Area Health Authorities have done so as yet. At a national level the government has delegated its health education functions centrally to the Health Education Council which is responsible, inter alia, for health education mass media campaigns, (none to date so far on nutrition education), for research including school health educational research and curriculum content, and for the preparation of material. Other bodies (some commercial) are involved to a greater or lesser extent in nutrition education.

The Ministry of Agriculture, Fisheries and Food publish a Manual of Nutrition, which is widely used by the intelligent lay public and by students. About 25,000 copies a year are sold.

2. What are the aims of such programmes?

(i) Prevention of nutritional deficiencies applies to the provision of vitamin C and D supplements to children and pregnant women, and to the provision of iron tablets in pregnancy.

(ii) Maintenance of a nutritious food supply and prevention of disease applies the effective and equal sharing of food by the rationing system of 1940-54, to the Welfare milk, school milk and school meal schemes, and to the fortification of bread and flour and of margarine.

(iii) Recent subsidies have been for purely economic reasons, i.e. as one of the measures to shield the poor from the worst effects of sharply rising prices.

(iv) Disposal of surplus foods is relevant to the beef and butter token schemes for the elderly.

3. Which level and Department of Government are responsible for such programmes?

The following Government Departments and Ministries are responsible in various ways:

(i) Department of Education and Science - school milk and meals.

(ii) Department of Health and Social Security - Welfare milk, supplements.

(iii) Department of Prices and Consumer Protection - food subsidies. (Subsidies are administered by the Ministry of Agriculture, Fisheries and Food).

(iv) Ministry of Agriculture, Fisheries and Food - Food and Drugs Act, Bread and Flour Regulations, Food Labelling Regulations, Novel Food Recommendations.

There is frequent consultation between Departments, for example all matters of health and nutrition are referred to the Department of Health and Social Security by other Government Departments or Ministries.

4. Are the programs monitored by surveillance of nutritional status, food disappearance data, morbidity and mortality statistics, other means?

(i) Total food supplies for the country are monitored by the 'Consumption Level Estimates' - statistics which are maintained by the Ministry of Agriculture, Fisheries and Food. The information is presented not only in terms of foods but also of nutrients and is unique in that both the vitamin and the mineral content of the food is included. The statistics are published annually.

(ii) Monitoring food supplies in terms of food purchased for domestic use is carried out by the 'National Food Survey' of the Ministry of Agriculture, Fisheries and Food. Housewives cooperate in the survey on a voluntary basis. The Survey provides a continuous measure of the

retail food which enters households in different regions of the country, including households with different incomes, and of different family composition. The nutrient content of this retail food is estimated and contributions made by fortified and subsidized food to the total amounts of retail food are included for the different population groups of households. The nutrient content is compared with the Recommended Intakes for Nutrients in the U.K. published by the Department of Health and Social Security 1969. The results of the Survey are available to Governments on a quarterly basis and are published annually.

The Survey was started in 1940 in order to monitor the effects of Government food policy on the poor in urban areas. From 1950 onwards the Survey has included representative sample of all households and thus monitors domestic supplies available to all.

The Survey results can be used to monitor the effects of recent food subsidies.

(iii) Dietary studies of food as eaten (i.e. the amount served but excluding plate waste) are made by the Department of Health and Social Security in Nutrition Surveys. These Surveys include socio-economic information, medical assessments, anthropometry, and sometimes biochemistry and haematology. Although some studies have been made on samples which are nationally representative, nutrition surveys are usually confined to 'at-risk' groups of the population (e.g. elderly, preschool children, immigrants).

(iv) Special studies - for example, growth studies of schoolchildren and preschool children were set up to monitor nutritional status in 1971 at the time of the changes in Welfare milk, school milk and school meals.

(v) The General Household Survey, a continuous sample survey of the general (i.e. non-institutional) population carried out by the Office of Population Censuses and Surveys on behalf of other Government Departments, collects information on morbidity as perceived by the respondents to the Survey. Although an attempt is made to code the reported morbidity to the 26 main ICD groups, it is not possible to identify diseases separately.

(vi) Mortality statistics are compiled by the office of Population Censuses and Surveys (OPCS) from causes of death entered on registered death certificates and include still birth data. Birth statistics are derived from notification of births by the Department of Health and Social Security and from registration of births by OPCS.

(vii) Area Health Authorities under the Hospital Activity Analysis which records numbers, length of stay, and diagnoses of all hospital in-patients.

The Department of Health and Social Security, jointly with OPCS, is responsible for the Hospital In-Patient Enquiry which covers information relating to 10% of all hospital admissions. In both cases diagnosis are classified according to the International Classification of Diseases. Trends in morbidity can be determined including those for nutritional diseases.

(viii) Blood Transfusion Statistics - the number of women of child bearing age who are rejected as blood donors because their haemoglobin is below 12.5 g are returned from each Blood Transfusion Centre throughout the country each month. They are sent to the Nutrition Unit of the Department of Health and Social Security, and give some indication (albeit inexact) of the prevalence of anaemia in women of reproductive age.

5. Is the effectiveness of monitoring programmes evaluated? How?

(i) A comparison is possible between the results of Department of Health Surveys which measure food eaten, and the estimate for domestic use made by the National Food Survey of the Ministry of Agriculture, Fisheries and Food.

(ii) There is no especially planned evaluation of monitoring programmes.

6. Have unintended effects been observed?

(i) The increase in the popularity of bottle feeding may have stemmed from the introduction of National Dried Milk in 1940.

(ii) The so-called diseases of affluence appear to be related to the Western type diet.

7. What methods are used to assemble data on (1) dietary intake (2) nutritional status?

Ad hoc Nutrition Surveys and growth studies made by the Department of Health and Social Security (see 4 (iii) and (vi)).

NORTH ATLANTIC TREATY ORGANIZATION SURVEY

ANNEX IV

NORWAY

NORWAY

NATO/THE COMMITTEE ON THE CHALLENGES OF MODERN SOCIETY STUDY ON "NUTRITION AND HEALTH"

1) What methods are used to change dietary habits?

EDUCATION

In the teachers' guidelines for education in the compulsory school (1-9 years) some emphasis is placed on teaching safe and suitable dietary habits.

In the School Lunch Program the pupils are encouraged to eat school lunches which satisfy criteria established by the National Nutrition Council.

Information to the general public on safe and suitable dietary habits is given by the Consumer Council and its nation-wide home economics information service and by the State Institute for Consumer Research.

FORTIFICATION

The Health Service in Norway has followed a restrictive policy regarding fortification of food.

Few products are fortified, for instance margarine with vitamin A and D, table salt with iodine, iron to "whey cheese" and bread.

Only the margarine fortification is required by law.

SUBSIDIZATION

Subsidization has for several years mainly been used as a means of regulating living expenses. Only during the last few years nutritional considerations have played a role.

2) What are the aims of such programs? (eg. correction of nutritional deficiency, prevention of other disease states, maintenance of a nutritious food supply, disposal of surplus foods, maintenance of healthy agriculture and food industries)

The main aims of these programs, when they were introduced, were correction of nutritional deficiencies.

Today in the Norwegian population malnutrition is virtually non-existent but there has during the last decade been a serious increase in cardiovascular diseases, obesity, iron anemia (especially among women) and the frequency of dental caries is still very high.

In a report presented to the Norwegian Parliament in November 1975, the Government has proposed a nutrition and food policy for the country up to 1990.

It presents the present situation in fields which are relevant for nutrition and health, aims for the new policy and various proposed measures. The Parliament is expected to deal with this proposed policy in the Autumn of 1976.

3) Which levels and Departments of Government are responsible for such programs?

The following Government ministeries are responsible for the programs: The Ministries of Agriculture, Church and Education, Consumer Affairs, Fisheries, and Social Affairs.

4) Are the programs monitored by

1) surveillance of nutritional status?

2) food disappearance data?

3) morbidity or mortality studies?

4) other?

The programs are to some degree monitored by the National Nutrition Council. Its annual report on food production and consumption in Norway also includes an evaluation of the nutritional situation.

5) Is effectiveness evaluated? How?

No.

6) Have unintended effects been observed?

7) What methods are used to assemble data on 1) dietary intake? 2) nutritional status?

The National Nutrition Council annually publishes a review of the food production and consumption in Norway based on official statistics.

The Division of Dietary Research carries out dietary surveys of various groups of the population.

NORTH ATLANTIC TREATY ORGANIZATION SURVEY

ANNEX V

BELGIQUE

Étude du Comité sur les défis de la société moderne
sur la nutrition et la santé

1. Les moyens mis en oeuvre en Belgique pour essayer de modifier les habitudes alimentaires sont : 1) la législation, 2) les communiqués de presse lors de la parution des nouveaux règlements, 3) l'édition de brochures par l'IBAN (Institut Belge de l'Alimentation et de la Nutrition, institut subsidié essentiellement par le Ministère de la Santé publique et de la Famille) et 4) la coopération des professeurs d'universités et de fonctionnaires du Ministère de la Santé publique à divers programmes d'information à la radio et à la télévision et aux articles de presse.

Exemples : 1)
- Arrêté royal du 8 mars 1976 portant sur la limitation de la teneur en sel dans le pain;
- Projet de règlement concernant les aliments préparés sans sel;
- Projet de règlement concernant le pain (e.g. teneur minimale en cellulose, teneur maximale en graisse etc.);
- Projet de règlement concernant les produits de viande (e.g. rapports, eau/protéines et graisse/protéines);
- Arrêté royal du 26 février 1976 fixant la teneur maximale d'acide érucique dans les huiles et graisses comestibles et dans les produits dérivés de ces denrées;
- Projet de règlement relatif à la préparation des denrées alimentaires en friture (température maximale à ne pas dépasser).

2) Lors de la parution des règlements concernant les denrées alimentaires, le Ministère de la Santé publique publie des communiqués de presse qui contiennent une synthèse du règlement en question et parfois aussi des suggestions à la population en ce qui concerne les habitudes alimentaires en rapport avec la denrée concernée.

3) Brochure de l'IBAN : attention au sel! (en annexe).

Projet de brochure : la prévention des maladies cardiovasculaires.

Il est à noter que le même Institut organise des journées d'études concernant des questions d'actualité, a constitué des groupes de travail chargés d'entreprendre l'examen de certains problèmes d'actualité concernant la nutrition et alloue des subsides en vue de promouvoir des études et recherches dans le même domaine et possède un service d'information du public.

4) Les fonctionnaires de l'inspection des denrées alimentaires sont souvent invités par les journalistes de la radio et de la télévision pour coopérer à des programmes d'information pour les consommateurs (e.g. pour le pain, les limonades etc.). Ils sont aussi parfois interrogés par les journalistes de la presse écrite pour donner leur opinion à certains sujets (e.g. le chocolat pendant la période de Pâques, les mesures d'hygiène à prendre à la maison, etc.).

2. Les objectifs poursuivis à longue échéance sont :

1. la correction des carences nutritionnelles (vitamines, minéraux, cellulose);

2. la prévention de certaines maladies (hypertension par le sel, maladies cardio-vasculaires);

3. la correction de certaines formes de malnutrition : trop de sel, de graisses, de sucres simples, de produits de la confiserie, trop peu d'hydrates de carbone composés, de cellulose, de certaines vitamines, etc.

3. 1. Ministère de la Santé publique et de la Famille

soit l'Inspection des denrées alimentaires

Cité Administrative de l'État
Quartier Vésale
B - 1010 BRUXELLES tél. 02/564.11.22.

soit le Service de la Presse et de l'Information

Rue Ducale, 81
B - 1000 BRUXELLES tél. 02/513.33.10

soit l'Administration de la Médecine Sociale

M.T.C.
Boulevard E. Jacqmain 162
B - 1000 BRUXELLES tél. 02/219.44.40

2. IBAN

Avenue de Cortenbergh 172
B - 1040 BRUXELLES tél. 02/735.81.70

4. Les programmes ne sont pas contrôlés au stade administratif car ils sont encore au stade de projet dans la plupart des cas. Occasionnellement l'IBAN et certains centres universitaires effectuent des enquêtes.

5. L'efficacité des programmes n'est guère évaluée (voir 4).

6. Vu les réponses sous 4) et 5) des conséquences imprévues ne nous sont pas connues.

7. Le méthodes utilisées pour recueillir des données sont principalement

   1. pour l'apport alimentaire : les statistiques données par l'Institut National de la Statistique

   2. pour l'état nutritionnel : les études effectuées par l'IBAN ou par certains centres universitaires.

NORTH ATLANTIC TREATY ORGANIZATION SURVEY

ANNEX VI

MEDICAL EVALUATION OF THE WIC PROGRAM (USA)

MEDICAL EVALUATION OF THE SUPPLEMENTAL FOOD PROGRAM FOR WOMEN, INFANTS AND CHILDREN (WIC)

The main conclusions of a recently released medical evaluation were that the children and infants who participated in the WIC program grew much faster than before the program and had less anemia. The women in the program gained more weight during pregnancy than was usual for the group, and their babies weighed more at birth. The impact of the program was greater on black and Spanish-American babies than on white babies. There was also less anemia in the women.

NORTH ATLANTIC TREATY ORGANIZATION SURVEY

ANNEX VII

ITALY

I T A L Y

NATO COMMITTEE ON THE CHALLENGES OF MODERN SOCIETY

Study on Nutrition and Health

1. What methods are used to change dietary habits? (e.g. education, fortification, subsidization)

As in other NATO countries we can say that not much has been accomplished in Italy with regard to changing dietary habits and in any case our opinion is that this is rather difficult to achieve.

All three methods (education, fortification, subsidization) are utilized, if only partially in some cases, in the effort to modify improper dietary habits.

(i) The addition of nutrients to foodstuffs has been carried out mainly in the field of dietetic products because only in this area does the law allow proper surveillance. The products, most commonly fortified and sold as dietetic foods are: fruit juices (Vitamin C); olive oil (Vitamins A, D and E); some biscuits (Vitamin B complex plus Iron). Other products are fortified with mineral salts like calcium, iron, fluorine. Furthermore some ordinary foods are enriched e.g. table salt (iodine).

(ii) Subsidization has been realised in various food assistance programmes in schools by distributing milk and complete meals.

Some canteens, in firms as well as in universities, are also subsidized.

(iii) The Ministry of Agriculture carries out a program of alimentary education through the publication of pamphlets, meetings, itinerant exhibitions, etc. The same Ministry provides mural posters for the purpose of orienting food consumption towards foods which combine economic convenience and nutritional value.

2. What are the aims of such programmes?

The fundamental aims are to prevent malnutrition, with particular attention paid to the lack of nutrients which may possibly occur in connection with certain extrinsic factors such as age, income, and geographical location.

The prevention of malnutrition due to excessive intake is also taken into consideration.

3. Which levels and Departments of Government are responsible for such programmes?

Responsible for the programmes are:

- Ministry of Agriculture,
- National Institute of Nutrition,
- Ministry of Health,
- Ministry of Education,
- Regional, Provincial and Local Authorities.

4. Are the programmes monitored by surveillance of nutritional status; food disappearance data; morbidity and mortality statistics; other means?

A systematic monitoring program does not exist. Various surveys on food consumption and on nutritional status in different population groups have been carried out by the National Institute of Nutrition, the above indicated Ministries, and by University institutes. The Ministry of Agriculture and the Central Institute for Statistics collect data on food consumption and nutrient intake. The Central Institute for Statistics is mainly concerned with the economic aspects of these data.

5. Is the effectiveness of monitoring programmes evaluated? How?

The data collected in Section 4 are not considered to be sufficient to evaluate the efficacy of the programs, mainly because the two overriding considerations, nutritional content and economic convenience, have not been correlated by the two respectively responsible organisations.

6. Have unintended effects been observed?

The modification of food consumption in connection with economic growth creates a risk condition for the development of the so-called degenerative diseases (diabetes, atherosclerosis, etc.).

7. What methods are used to assemble data on 1) dietary intake; 2) nutritional status?

The reply to this question is included in the answers given in certain of the above paragraphs, especially 4.

NORTH ATLANTIC TREATY ORGANIZATION SURVEY

ANNEX VIII

NETHERLANDS

Improvement is possible only if information is available on the nutrition pattern of the population and of certain classes of the population. Compiling of data in this field is done by the Nutrition Council of The Netherlands. In judging these data some mandatory fortification of food items are promulgated by the Government. In The Netherlands margarine and halvarine (a low fat spread) shall contain 3 I.U. of Vitamin D_3 and 20 I.U. of Vitamin A per gram. In bread baking the baker is obliged to use salt that contains an amount of potassium iodine of at least 41 and not more than 51 milligrams per kilogram.

The main issue however lays in health promotion and nutrition education. Therefore a national Bureau for Food and Nutrition Education was founded, the activities of which are paid for by the Government. Health education programmes are developed to be introduced in schools.

Surveillance of nutrition status is done by the National Nutrition Council, advisory to the Ministry of Agriculture and the Ministry of Public Health. Food disappearance data are collected by the Ministry of Agriculture. Only in a few cases direct food consumption survey data are available. Morbidity and mortality data are compiled by the Central Bureau of Statistics. The effectiveness of these monitoring activities is not yet evaluated. No unintended effects are observed. Initiatives are developed nowadays to promote voluntary nutritional labelling of food products in order to facilitate the making up of a diet by the consumer along the lines of the dietary goals established by the National Nutrition Council.

Our experience is that it is extremely difficult to alter dietary habits of adult people.